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ADVERTISING AS PREPAREDNESS FOR THE PURSUITS OF PEACE.

PREPAREDNESS for peace is as vital as preparedness for war. This is the viewpoint of business men, who have their fingers on the pulse of affairs, national and international.

Advertising, it is declared, is the strongest constructive force for peace preparedness. It is a force which has always been of vital aid to business, the world over. Advertising has rightly been called the A. B. C. of commercial development. It has put life into many a jaded industry. It has created many customers in territories where only a few had previously existed.

Concerns in many lines have established trade marks through the power of advertising—trade marks that have impressed themselves upon the collective mind of the purchasing world.

The success of a trade mark depends upon the number of persons who have knowledge of it and of what it represents, whether it be a product in the plumbing and heating line or a name that a contractor has adopted to advertise the kind of service he renders.

There is an old adage to the effect that a product is apt to be forgotten when the advertising, that promoted its sale, is stopped. It is either a weakness or a virtue of the human mind, that it is more susceptible to things seen than to those not seen. The business which ceases to advertise because of the war, serious though it be, is not preparing for the pursuits of peace. It is rather inviting loss instead of economy, disorganization rather than organization.

In this connection, George Frank Lord, director of advertising for du Pont de Nemours & Co., Wilmington, Del., is particularly emphatic. In a recent article in Printers' Ink, he says:

"We are advertising not merely for current sale results but for the development of future markets. Our advertising is institutional. It is to our interests to continue it. Those who discontinue advertising now for the period of the war will find, when peace is restored, that they will have to face a condition of dealer and consumer apathy and of disorganized and luke-warm trade connections, that will take years to overcome.

"There are those who assume that the purpose of advertising is to encourage waste and to promote extravagant buying. Of course, this isn't the object.

"Good advertising is nothing more than spreading information about goods, and hence it causes people to buy more carefully and more intelligently. If discrimination in buying were ever needed, surely it is vitally necessary now. People do not usually look to advertising to show them how to spend their surplus. Rather does it point out to them how to direct their spending power so as to get the greatest measure of benefit from it. Much of the advertising now appearing is distinctly of this type. Much of it helps to solve our difficult economic problems. So true is this that Mr. Hoover has put his endorsement on food advertising. Without it many of the foods that the Administration wish us to favor would pass neglected."

There are many business men who have spent thousands of dollars in order to build up a desirable clientele, to whom they can dispose of goods or service. In some instances this clientele is steadily growing in size. To stop building it to larger proportions at this time, or to fail to maintain its present status through intelligent and constructive advertising, is doubtlessly not paving the way for peace preparedness. It would appear more logical to hold fast to your clientele now than to seek to regain it after the war.

SOMETHING ABOUT WATER

Effect of Pressure on Flat and Curved Surfaces and Work Done by Pressure

By John H. Perry

Chapter III.

IN Chapter I we studied the expansion of water, showing how plumbers can take care of it in a safe and practical way.

In Chapter II we defined the difference between hydrostatic and dynamic pressures, showing how water is made to flow through pipes and several agents which retard it, such as friction, unreamed pipes, etc.

In this chapter we will try to show how water pressure can be utilized in a mechanical way to accomplish work, such as lifting heavy weights, reducing its own pressure and so on.

To go about it in the right way we must, of course, begin at the beginning. We must get a good understanding of the fundamental principle of "hydro-mechanics."

That may sound like a fearsome word to some of our young readers, but there is nothing fearful about it. It is simply mechanics as they relate to water.

There is only one way to utilize water in a mechanical way, that is by its pressure. It is used in a multitude of machines, for many different purposes. But in nearly all cases the object is the same—namely, the transmission of power from one place to another by liquid pressure.

In ordinary mechanics, force is transmitted from one part of a machine to another by solid rods, bars, chains, belts, pulleys, shafts, etc. In hydro-mechanics the force is transmitted by water in conjunction with certain other necessary machinery to confine, distribute, or otherwise operate or control the fluid.

In this study we must compare liquid force with force from a solid.

There is a great difference between these two forces. Put on the gloves with somebody your height and weight, spar a while, then let him have one on the cheek. This is the application of direct mechanical force. Nothing happens except that your opponent's teeth may have cut into his cheek, and his mouth bleeds. That would be the natural result of such a force applied in such a manner.

But let him spar with his mouth so full of water that his cheeks bulge out; then land him one on the same spot and see what happens. The force of the blow is instantly transmitted to the water in his mouth. The pressure is increased, and the water squirts from his lips and perhaps also his nose, in a rather amusing, if not alarming, manner.

This time his teeth are not liable to cut into his cheek, but the force of the blow may do more serious damage in his nasal or throat passages to which places it is transmitted by the water pressure.

It is not wise to box with your mouth full of water. And for the same reason it is not wise to box when your stomach is full. Now let us see how we can bear out the above statement by facts.

First, consider the most elementary principle of transmission of force by a liquid.

Fig. 1 shows at A a column of water, 27 inches high and 1 square inch in cross section. The plan view shows that the vessel has four sides, each 1 inch wide. The top of the vessel is open. The bottom is closed. The vessel therefore contains 27 cubic inches of water, which weighs 1 pound. All this weight is held up by the bottom, which has an area of 1 square inch. The pressure on that square inch is therefore one pound. That is, the force, which tends to blow out the bottom.

You can pour out the water and insert an iron rod, weighing exactly one pound, the rod resting on the bottom. Then the force trying to knock out the bottom is one pound, exactly the same as the force of the water in A.

The rod weighs the same as the water, is inside the same vessel, and has the same mechanical effect on the bottom, but what about the sides?

If we punch a hole in the bottom larger than the rod, the rod will go through the bottom. In like manner, if

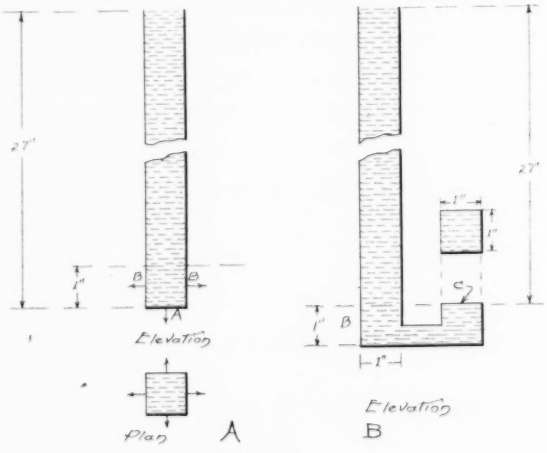


Fig. 1.

we punch a hole in the bottom when the vessel is full of water, the water will run down through it. As far as the bottom is concerned, the force of the rod and the force of the water act very much in the same way. But if we punch a hole in the side, say down near the bottom, does the force of the rod and the force of the water both act the same way? No,—they act entirely different. The water runs out through the hole in the side as easily as from the bottom. But the rod does not go out there. The rod does not move. It stays as stationary as a walking stick in an umbrella stand. We all know this to be a fact. Indeed, it seems almost foolish to refer to such a simple thing in a technical journal. But it is the first step in the teaching of a great principle in plumbing. Look at the water column at A in Fig. 1 again. Note the arrows in

the plan view. See how they shoot outward. They represent the direction in which the water is pushing against the sides. The water pressure here is practically equal to that on the bottom. The pressure, pushing outward on each square inch at B, equals about one pound. In a height of 1 inch above the bottom there are 4 square inches, 1 inch to each side. The total pressure bearing against the vessel for 1 inch above the bottom is 4 pounds. This is the lateral pressure, which would cause water to flow through a hole punched in B. Or if a pipe were joined to any one of the sides B, this lateral pressure would cause water to run through it.

Now look at view B in Fig. 1. A horizontal tube connects base of 27-inch column to another vessel having a closed top C. Here we find another condition of pressure. The pressure pushes up against the under side of C. This is called *upward pressure*. It also exists because of the viscosity of water.

It was stated that water exerts pressure in *all directions*. Not only downwards, like a bar of iron; or downward and sideways, like dry sand; but upwards too. All liquids and all gases have this property of exerting a force equally in all directions. If it were not for this property, water would not rise in pipes to the top of a building. Neither could pumps and hydraulic machines be made to work right.

We said that force exerted by water is at right angles to the surface. This means that the water pressure against the flat bottom of an upright range boiler, for instance, is all directly downward, the lines of force being at right angles to the flat bottom.

It also means that the lines of force against the shell of the boiler, which is round, are radial. Fig. 2 is a good illustration of this statement. At the left we have a horizontal range boiler with all outlets plugged except the top one, which has a tube screwed into it.

The view at right of Fig. 2 is a section through the boiler, showing these radial lines of force, each one pushing squarely against the boiler shell, and tending to burst it. The cut only shows a few of these radial lines. In reality, however, there are thousands of them, but they are invisible. If the height from center of boiler to water

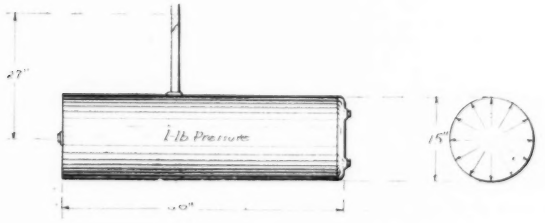


Fig. 2.

level in tube is 27 inches, as shown, the average pressure per square inch in that boiler is 1 pound. If it is 100 feet, the pressure per square inch is 43.4 pounds, and so on.

If the boiler is 5 feet high by 15 inches in diameter and the water pressure in boiler is, say 50 pounds, the pressure tending to blow out the top is 883.5 pounds. The bottom, which has the same diameter as top, also has 883.5 pounds tending to blow it out. But the area of the shell is 2,820 square inches, and as each square inch must resist a pressure of 50 pounds, the total force acting against the inside of shell is 141,000 pounds, or over 70 tons. Could you believe it? If the water pressure in that boiler were 100 pounds by the gauge, as in Fig. 3, each end would have to resist nearly a ton, while the shell would have to resist 140 tons. All this stored-up energy is ever active, day and night, trying to burst the boiler or push water out of any little crevice that might exist.

Plumbers are the men who bottle up these great forces. In order that it may be done successfully, plumbing must be very carefully, very accurately—yes—very scientifically constructed.

I think I hear some plumbers say: "How is it that this enormous pressure does not burst the boiler? The boiler

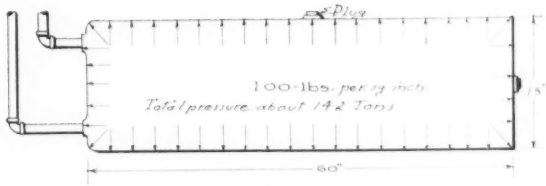


Fig. 3.

shells are quite thin, from ¼-inch up. How do they stand it?"

The answer is simply this: "The pressure is not concentrated in one spot, or in any particular part; it is distributed over a large area." Furthermore, the amount of force tending to burst the shell is not as much as 140 tons. It is true 140 tons are exerted against the shell, but the real force which is acting to tear the shell apart is only 45 tons, or 22.5 tons at each side of the boiler. The force trying to burst the riveted seam of the shell is only $60 \times 7.5 \times 100 = 45{,}000$ pounds, or 22.5 tons.

Fig. 4 shows how it happens. This represents a section through the boiler. Suppose the spaces A and B were filled with Portland cement, and that space C, within the vertical dotted lines only, is filled with water at 100 pounds pressure. The pressure then pushes against the two faces of cement fillings as shown by the arrows.

Now, suppose we saw off a ring right across the boiler, cement and all, making the ring one inch wide. Then we have a rectangular chamber C having a face on one side containing 15 square inches, and an equal face at the other side. The pressure against these faces tends to push them apart. But the parts of the ring at D and at E resist the pressure, and hold the two halves of the ring together. The force tending to burst this ring is 15 (inches) times 100 pounds = 1,500 pounds. But this is resisted by both thicknesses of metals at D and E, equally. Therefore, the force tending to burst the boiler is 750 pounds per lineal inch of boiler shell. The thickness of the shell must, of course, be great enough to resist this force.

"But," you may say, "boilers are not built that way. They are not filled with cement. Suppose that the cement is omitted in Fig. 4, how about the resultant stress on metal at D and E?" It would be the same. Cement was mentioned merely to emphasize the fact that it does not matter whether A and B are filled with water or other material, the stress would be the same at D and E. The things that count are diameter of boiler and pressure. The diameter in inches multiplied by water pressure in pounds, gives the stress at D and E in pounds per square inch due to the water pressure.

Perhaps this can be made more clear by reference to Fig. 5. This shows three water cylinders, A, B and C, all the same inside diameter and shape, but each is fitted with a different kind of a piston. A flat-faced piston is at A, a convex one at B, and a concave one at C.

Suppose the area of the flat piston at A is 100 square inches, and the cylinder is subject to a pressure of one

pound, then the force tending to push piston out in direction of the arrow is 100×1=100 pounds. That is easy. And if pressure inside cylinder were 100 pounds, the push against the piston rod would be 100×100=10,000 pounds, or 5 tons.

Now we come to the case at B. One might think that the hydraulic pressure would slide off the rounded nose end of this piston, and that the resultant push on the rod would be much less than at A. But it does not. Neither does the increased area of piston, exposed to the

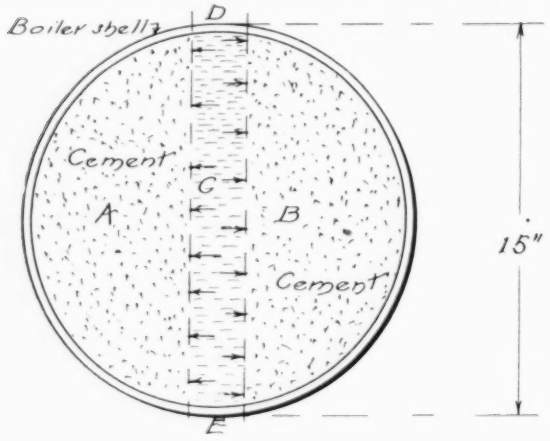


Fig. 4.

water pressure, increase in any way the resultant push against the piston rod. In fact, both of these pistons will push out with exactly the same force, with the same pressure on their dissimilar faces. And one might think that the greatly increased area of piston face at C, combined with the cavity in piston, might suggest a concentration of driving force in the piston. But it does not really make one "iota" of difference. The resultant force transmitted to the piston rod in C is the same as at A for the same cylinder pressure and diameter.

To prove this assertion involves stress diagrams showing the parallelogram of forces and their resultants. But space will not allow such a digression at present. It is enough to accept that as an axiom for the present.

Now let us apply these facts in a practical way. Let

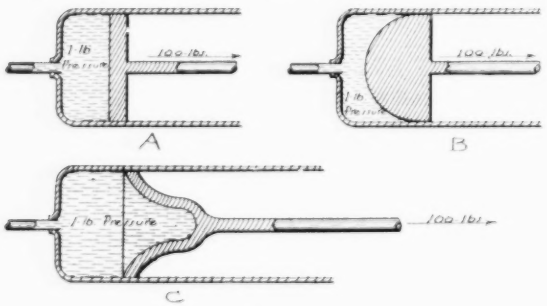


Fig. 5.

us see how pressure can be increased or reduced by pressure. We have learned that pressure multiplied by effective area equals applied force, so to speak. We found that in the case of Fig. 5. The effective area refers to the area of a flat face, as in the piston at A, Fig. 5. When you compare this flat area with the curved areas of piston faces in Fig. 5, B and C, you will readily see what is meant by effective area.

Applying this to a case of increasing pressure by pressure, or a pump pumping against a higher pressure, examine the sketch Fig. 6. This is a section through a direct acting steam boiler feed pump. Suppose it is used to feed a steam boiler with water against the full boiler pressure. The left hand end is the steam end. The right is the water end. Steam pressure from the boiler enters steam cylinder through ports A and B. Exhaust steam leaves the cylinder through ports C and D. These ports are opened or closed by a slide valve not shown. The steam piston E is direct-connected to a plunger F in the water cylinder by a rod G. Both cylinders are attached to a base not shown. The suction pipe connects to both ends of water chamber with checks at H. The discharge pipe also connects to water cylinder with checks at J. The suction checks open into the cylinder. The discharge checks open out.

Let us suppose the area of E is 100 square inches, the area of F is 50 square inches, and the boiler pressure 100 pounds. What happens if steam is turned into the steam cylinder? Suppose the slide valve is so that steam pipe opens to end K, while L is open to the exhaust. The pressure pushes the plunger rod, and water plunger F in the direction of the arrow at rod.

If a valve is closed tight on the pump discharge pipe, the pressure in space M will be raised to 200 pounds by the gauge and the pump will stop.

Now we have a condition of 100 pounds pressure in the steam pump cylinder and 200 pounds in the water cylinder. At these pressures the pump is balanced, which can be figured as follows:

Steam pump end: Cylinder area 100 square inches × 100 lbs.=10,000 lbs.

Water pump end: Cylinder area 50 square inches × 200 lb. pressure=10,000 lbs.

So, you see, that by changing piston areas we manage to make a given pressure create a greater pressure.

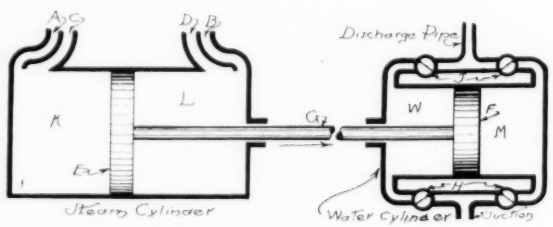


Fig. 6.

Now open the valve on pump discharge pipe, and water will instantly flow from pump to boiler against the very pressure that drives the pump.

In a similar manner, if the steam piston were 50 square inches in area, while the water piston was 100 square inches in area, the 100 pounds boiler pressure could only raise 50 pound pressure at pump, and, of course, such a pump could never feed a steam boiler.

If you examine direct-acting, steam-driven, boiler-feed pumps you will find that all the pump plungers are smaller than their respective steam pistons. And now you know the reason why.

In the plumbing trade we find many kinds of pressure regulators, reducing valves, etc., which depend upon the laws referred to for their operation. For instance, take the case of a simple pressure regulator. This is an instru-

(Continued on page 157.)

CHIMNEY TROUBLES *and* THEIR CORRECTION

Some of the Reasons for Poor Draft in the Chimney Flue with Suggestions for Locating and Correcting the Trouble

By Alfred G. King

HAVING considered the matter of "Chimney Requirements," as discussed in a recent article, we can approach the subject of "Chimney Troubles" with a very good understanding of what is required of the chimney, as to shape, area, and height, in order to properly burn the fuel required in the boiler of the heating system.

When trouble is experienced with a heating apparatus due to poor or inefficient draft it naturally follows that the first move to be made should be an examination of the shape of the flue and a checking up of the area and height to ascertain if these factors are sufficient for the work required.

The great majority of draft troubles occur at the base of the flue or at some point other than at the top. Aside from trouble caused by a down-draft, or the draft cut off by the wind striking a part of the building higher than the chimney or blowing over the top of it (due to insufficient height, as noted in the preceding article), there will doubtless no other cause for inefficiency be found at the top of the flue, unless it might be from a leaky chimney due to faulty brick laying.

The brick composing the top or exposed part of the chimney should be laid in cement mortar with carefully struck joints. If the bricks are laid in lime mortar the action of the sulphuric acid fumes and chemical products of combustion will decompose the lime and allow the sand in the mortar to become separated from the brick, and the rain and wind will then wash out and blow out the

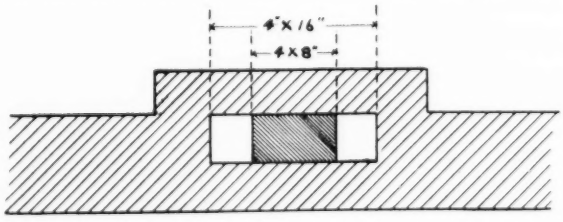


Fig. 1.

sand and loosen the bricks resulting in a leaky and dangerous flue. A tile lined flue is practically immune from the effect of chimney gases and also greatly lessens the risk from fire. The danger of plastering a flue lies in the fact that, when the chimney settles (as all chimneys do), the lining cracks off, and the plastering in loosening from the brick takes with it a part of the mortar forming the joints, and this action sooner or later results in a leaky flue.

Chimneys built up outside the wall or line of a building are frequently quite ornamental in appearance but often fail, due to the chilling or condensing effect of the cold wall. If the outside wall or ornamental part of the chimney is built of stone, and the flue of brick on the inside, or if an outer wall two bricks thick is constructed outside of the flue, there is little trouble of this kind although

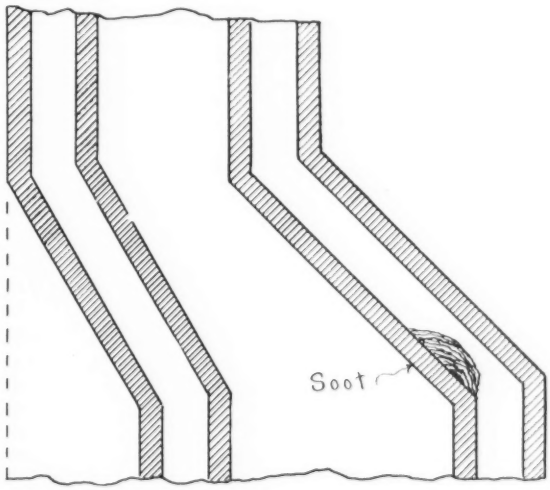


Fig. 2.

a chimney built up through the inside or centre of a building is much better than any other, owing to the fact that it is surrounded by warm walls and rooms. There is practically no condensation in a chimney of this kind. The practice of many builders, who place the chimney flue in a thin outside wall, should be condemned as, aside from the chilling effect of the thin wall, such flues are often constructed long and narrow and while a flue of this character may have the required area it is of little service as only about one-third of its area is effective; also there is apt to be a down-draft at the ends of it. Fig. 1 illustrates a flue of this character, the shaded portion showing the effective area. A flue shaped like that illustrated has a large outside wall or condensing surface which increases the heat loss and friction.

A not uncommon troublesome experience is that of watery creosote running down the flue and smoke connection. This condition is a direct result of the condensation of the products of combustion in an exposed and chilled flue. Certain grades of coal contain considerable

moisture and a large amount of hydrogen, which in combination with carbon is called hydrocarbon. Ordinary fire wood, especially if partially green, contains a large percentage of water as well as hydrocarbons. When a hydrocarbon is burned in the air it produces water from the combustion of the hydrogen and carbonic acid from the burning of the carbon. If the temperature of the flue

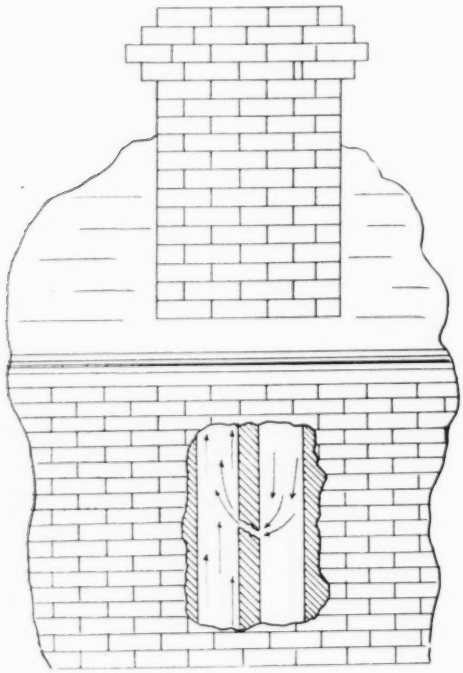


Fig. 3.

is kept above 600 or 650 degrees this matter will pass out to the atmosphere with the smoke before cooling. If the flue is chilled and this matter allowed to cool, it will deposit on the sides of the flue and run down the chimney and smoke pipe. We have known the liquid to deposit and dry to a consistency as hard as flint adhering to the dampers and interfering with their proper working.

If an examination of a troublesome flue reveals no apparent bad condition at the top, and looks to be all right and of proper size at the bottom, it is reasonably sure that there is some obstruction, contraction, or break in it at some point between the smoke pipe connection and the top. If for any reason the flue is built with an offset it may be clogged with soot or, as the writer has found on several occasions, the birds may have built nests in the offset. If an offset is necessary it should be constructed at a very abrupt angle and care should be exercised when building the chimney that mortar and pieces of brick do not find a lodgment on the side of the flue forming the bottom side of the offset. Fig. 2 illustrates the proper and improper method of offsetting a flue should it become necessary to do so. The illustration shows how a flue of this construction will become clogged with soot.

If the troublesome flue is built straight from bottom to top, look for a possible contraction in the size of it. It sometimes occurs that, when the inner wall of a chimney supports floor joists, its flue area has been contracted by offsetting the wall inside of the flue to better protect the end of the joists. This is not a very common source of trouble, as this method is now seldom practiced. It should be carefully avoided during construction as a flue is only as large in capacity as its cross sectional area at the smallest point of its length.

Frequently the draft in a chimney is cut off by some opening into it other than that required for the boiler. If the flue is an old one there may be openings into it for stove pipes in rooms on upper floors, or possibly such openings have been closed by pasting cloth and papering over them and the paper may have cracked open. There is only one good method of closing an opening of this character and that is with brick and mortar.

A fireplace is sometimes connected to the flue used for the heating apparatus. These fireplaces are usually provided with a damper or baffle plate, which may have been left open. This damper should be cemented shut.

Fig. 3 illustrates a condition frequently found when two or more flues are built into one common chimney. They possibly are separated by a very thin single brick partition. It is important that there shall be no connection from one flue to the other as a loosened brick or a cracked wall, as suggested by Fig. 3, will effectually spoil the draft of the flue in service. The writer has frequently located trouble of this kind by holding a bag or old rug over the top of the heater flue to ascertain if the smoke and gases would rise through a flue adjacent to it. If the heating apparatus is not in service the interior of the flue may be thoroughly examined by lowering a small electric flash light from the top by a cord of good size, which when twisted, will cause the electric torch to revolve and light up all sides of the flue and any break or crack in it can in this manner be readily detected.

Some years ago, when exceptionally large chimneys were built for use with fireplaces and small shallow flues for stove connections, it was customary to begin the flue at the bottom of the chimney or on a level with the basement floor and at this point to provide a clean-out door. It has been determined that it is much better practice to

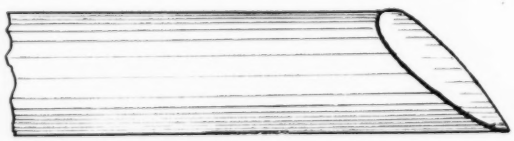


Fig. 4.

begin the flue but a short distance below the opening for the smoke pipe, the chimney being solidly built up to this point. The reason for this change in the method of construction is that the smoke ascending spirally does not reach the corners of the flue, nor the sides or ends of it (if the area of the flue is large), and the smoke rising against the pressure of the atmosphere creates eddies and down drafts. If there is a dead air chamber at the bottom of the flue, this tends to superinduce or assist the down-draft in the corners or ends, causing unnecessary friction, which retards the ascending column of smoke. A remedy for this condition is sometimes found by shearing off the end of the smoke pipe to a sharp angle and extending it into the flue, until the end of the pipe strikes the outer wall of the flue. Fig. 4 illustrates the method of shearing or pointing the end of the pipe and Fig. 5 its application in the chimney flue.

If it is required that a single flue shall serve two fires, one is quite apt to have a better draft than the other. This is due to the fact that the position of one smoke pipe, emptying its volume of smoke and gases into the flue, destroys the draft of the other. Baffle plates may

be used in the chimney to counteract this interference, but it is frequently somewhat difficult to place these baffles in the flue properly. The writer has used a method much more easily applied. The end of the upper smoke pipe is capped and the upper side is cut out sufficiently so that the area of the opening equals the area of the pipe.

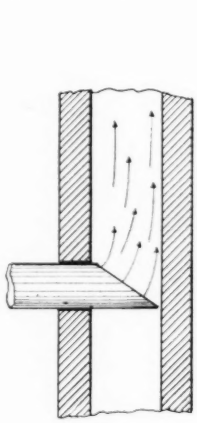


Fig. 5.

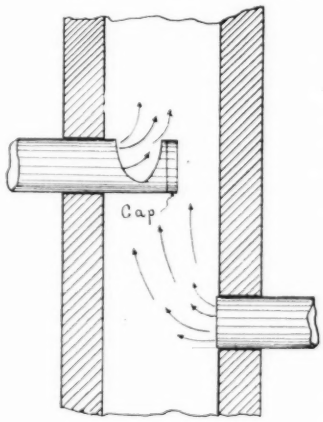


Fig. 6.

The pipe is then inserted in the flue as shown by Fig. 6. While it is required that only one of the smoke pipes should be shaped in this manner we have found it good practice to give both pipes the same treatment.

A not uncommon source of chimney trouble is insufficient draft due to the smoke pipe being extended so far into the chimney as to choke the flue by reducing the area of it at the point where smoke pipe is connected. If a poor draft is due to this condition, the trouble is easily determined and corrected.

A poorly designed, leaky, or faulty flue is not the only reason for poor draft or other kindred trouble. In connection with this subject we may properly call attention to several details relating to the setting of the boiler, and also to the method of connecting the same to the chimney, which have a direct bearing upon the good or poor results attained.

It is important that a level and strong foundation be provided for the boiler. If the weight of the boiler causes the foundation to settle and crack, or if the base of the boiler does not set firmly on the foundation, air will enter under the grate and cause the fuel to burn even though the draft door is closed. This is also true of leaky joints such as are found if the fire pot of a boiler does not set firmly upon the base. All such crevices or openings should be closed with cement or boiler putty, as the only air admitted under the grate of a boiler should be through the draft door.

The smoke pipe should always be of a size to conform with that of the smoke pipe collar of the boiler. Do not attempt to reduce the size of the smoke pipe called for by the manufacturers of the boiler; also see that it fits tightly to the smoke box and into the chimney opening. Loose connections at these points will allow air to leak into the flue and interfere with the draft.

Quite often it is found that no one fault is responsible for trouble. Poor draft or excessive coal consumption is frequently due to the combined influence of several lesser faults or adverse conditions.

Beat Him To It.

The stranger on a walking-tour came across an "old, old man a-sitting on a gate" and began to ask questions:

"You are a farmer, I suppose?"

"No, not now. I used to be, but I gave it up."

"Well, you don't seem to be very busy. You have plenty of time on your hands, haven't you?"

"Lots of it."

"Ever do any work?"

"Once I did."

"What do you do now, if I may ask?"

"Don't do nothing. Hain't done nothing for nearly ten years."

"So. Why, you're in luck! If I did nothing for half that length of time I should be in the poorhouse."

The old man's face beamed with a glad surprise, and then, as one who knows his rare good fortune and values it at its just worth, he cried delightedly: "That's where I be!"—Pittsburg Chronicle-Telegraph.

[By permission of The Passing Show.

NAGGING WIFE *(to her husband, Chairman of Local Tribunal)*: "There now, didn't I tell you it was a mistake to refuse exemption to the only plumber in town!

From "The Sanitary Engineer of Canada."

When The Only Plumber In Town Goes To War.

Some newspapers have said that the plumber is a "necessary evil," but in contemplating the accompanying pen sketch, it would seem more fitting to say that he is a "necessary blessing." No doubt there are some communities in this country as well as in England where house owners are wishing that more plumbers were available in such cases of emergency, as we see depicted in the cartoon. When the only plumber in town goes to the firing line, it is no joke as far as the householder is concerned.

Do not fail to read "Legal Questionaire" on another page in this issue. It may help you to make more money.

QUESTIONS & ANSWERS

AIR-BOUND STEAM COIL PREVENTS RANGE BOILER FROM HEATING.

Editor "Domestic Engineering":—Fig. 1 is a sketch of a range boiler connected to a one-pipe steam heating system. The tank does not heat properly. The coil is

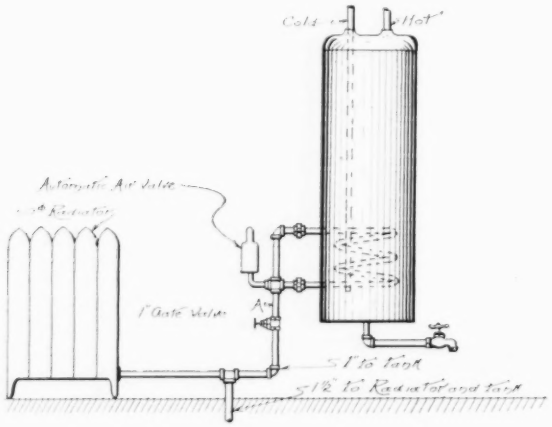


Fig. 1.

not clogged. There are more jobs of the same kind in this town.

Kindly let us know the easiest way to make this arrangement work right.

Menominee, Mich. L. & E.

The reason why the water in range boiler cannot be

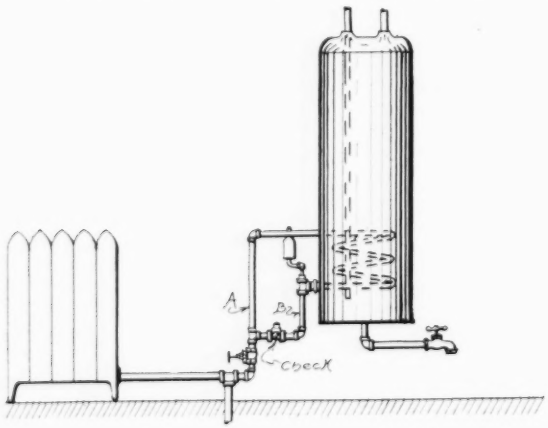


Fig. 2.

heated properly by the steam coil within the boiler, is because the steam coil is air bound.

When steam rises in pipe A, air is pushed out of this pipe through the air vent. But as soon as the steam reaches the cross it immediately rushes to the vent and closes it. But air is still inside the coil. Some steam enters the coil, as some of the air gravitates out of it. But a point is reached, where a considerable quantity of the air is permanently air bound and cannot possibly gravitate out. Owing to the kind of connection made, it is impossible to blow the air out of coil, even if air vent were unscrewed and the steam allowed to blow full force. We think this is plain.

Now the proper remedy therefore is to change the connections some way, so that a positive blow through can be obtained for the coil. There are different ways of doing it, but we think the plan shown in Fig. 2 is as good as any. In it we have lowered the steam supply valve. Thus we drop the return pipe 1 foot or so, connecting it into side of steam pipe above the valve, with a swing check, as shown. Then on top of tee, where coil return comes through boiler, we place an automatic air vent. By this arrangement all air can be blown out of coil through air vent. All condensation falls into pipe B. A hydraulic head is automatically formed in this pipe, which pushes all condensation water into the pipe A against the steam pressure.

The check valve is used to prevent steam from backing up into pipe B and nullifying the effect of the air vent. If correspondents change the connections as shown in Fig. 2, we are sure they will obtain very satisfactory results.

AN UNSATISFACTORY GREENHOUSE HEATING PLANT.

Editor "Domestic Engineering:"—I submit a sketch of a small greenhouse with some data regarding the hot water heating apparatus installed in it. I cannot heat same to 70 degrees in zero weather, although this is the temperature I must have. Can you tell me why?

Pennsylvania. O. J. N.

The following information is given with the sketch submitted, which we illustrate herewith in Fig. 1. The greenhouse is 19x40 ft. on the ground, 10 ft. 7 inches high at the ridge of the roof, and 4 ft. 9 inches high at the eaves. There is a 10-inch belt of glass around the house immediately below the eaves. This belt is broken evidently by frame panels, so that a part of it only is actual glass surface. There are doors at either end, each measuring 3 ft. x 6 ft. 6 inches and having glass upper panels. The walls are of concrete, 8 inches thick on the north side, and 6 inches thick on the south side. The heating surface is composed of radiators (evidently of the wall type), along both the north and south wall, and nine 7-ft. sections (63 sq. ft.) in the centre of the house. The radiation totals 600 sq. ft. The boiler used has a 23-inch fire pot and grate, and correspondent states that there is no trouble in keeping the water at 180 degrees at the boiler.

Correspondent further states that the glass surface approximates 1015¾ sq. ft. which we should judge is about correct as, using a quick rule for estimating, we obtain 1013 sq. ft. of glass. This rule is given as follows: To the ground area add ⅓ for the pitch of the roof and the glass ends of the house. (19×40=760+⅓=1013.) Each four square feet of wall is equivalent to one sq. ft. of glass. The wall surface figures to 532 sq. ft. which equals 133 sq. ft. of glass and 1015+133=1148 sq. ft. of equivalent glass surface.

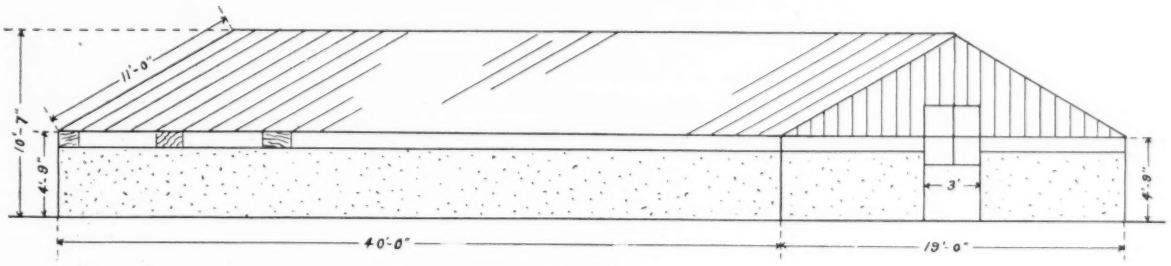


Fig. 1.

To warm this house to 70 degrees in zero weather, with water at 180 degrees, 500 sq. ft. of radiation should be sufficient, therefore, if 600 sq. ft. of radiation is installed, there is ample radiating surface. A boiler having 1.98 sq. ft. (approximately 2 sq. ft.) of grate surface should be of ample size. 144×2= 288 sq. in. A grate 20 inches in diameter has an area of 314 sq. in., therefore, the size of the boiler now installed—23-inch grate, having 415.5 sq. in. of surface—should be large enough to do the work with ease and economy.

In answer to correspondent's query: "Can you tell me why?" we would say that, with ample boiler and radiating capacity installed, the reason for poor service must be in the character of the draft (possibly a poor chimney of insufficient height or area) or in the method of piping. Regarding the latter cause it would be well to determine, if the piping is of ample capacity, and if so look for air pockets or other obstructions to the proper flow of the water.

INSTALLING BASEMENT RANGE AS BOOSTER TO DOMESTIC HOT WATER SUPPLY.

Editor "Domestic Engineering":—Please give me a sketch of piping. I wish to set a separate coal heater in basement and connect with two 30-gallon boilers, one on each floor, already connected to coal ranges. Also, I wish to take off supply to laundry tubs in basement. Show sizes and connections, so they will heat uniformly in both.

Stoves are to remain connected as they are. Do you think this heater will overheat the boilers as it was intended to heat a 40-gallon boiler originally?

Chicago. H. H.

This is rather a ticklish problem. It appears to us that the intention is to furnish hot water to first floor from first floor boiler and to second floor from second floor boiler, and to both first and second floor boilers from a new range to be placed in basement, perhaps in a laundry, which is used by both first and second floor tenants.

On this assumption we believe that the hot water generated by either tenant should not be drawn off by the other tenant. Also that, if possible, the new basement range should be used to supply the laundry tubs in addition to heating the two upper boilers.

Thus whichever tenant is using the laundry can push the new basement range to obtain the hot water required therefrom. Perhaps the suggestion shown in Fig. 1 will work as well as any arrangement, that can be designed for this peculiar service.

It is an unusual and, perhaps, rather peculiar arrangement in some respects, but we believe it will give the desired results, if fitted up exactly as shown.

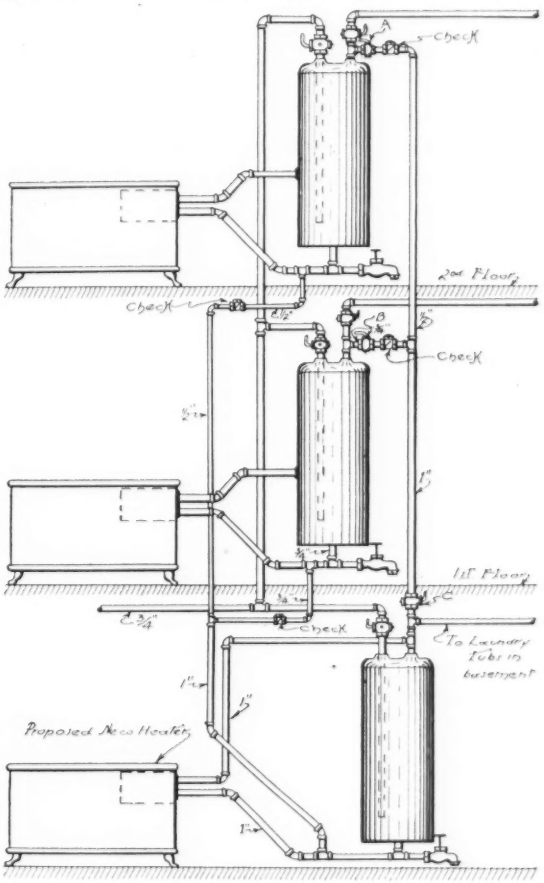


Fig. 1.

We have taken the liberty, however, to show an additional boiler in basement to store surplus hot water, which we think might at times be generated by the new water back.

There may be times, when both upper boilers shall be thoroughly heated by their respective water backs, and

at such times the water in basement water back would be liable to boil.

To take care of this new range, therefore, we advise the use of the separate boiler. Besides, during wash days, this boiler should be heated down to the bottom so as to ensure an ample supply of hot water.

The check valves shown are necessary to prevent one tenant from drawing the other tenant's hot water. And they also prevent the tubs from drawing from either of the upper boilers.

During ordinary running conditions, the hot water delivered from basement water backs will flow partly into basement boiler and partly up to first and second floor boilers.

The upper boilers are no doubt favored in circulation, but the stop cocks, A and B, can be checked down and set so that a good adjustment can be made. If party on first floor draws hot water, he draws it from his own boiler. He cannot draw from upper boiler, but he can draw from basement boiler. And if an unusual amount of hot water should be required in laundry, the cock, C, may be shut for the time being.

If tenant forgets to open it again, nothing serious will happen, as basement boiler will take care of basement range.

If any practical reader has any fault to find with this arrangement or can suggest a better one, we will be pleased to hear from him, with sketch showing the improvements he suggests.

IF YOUR WATER CLOSET PUT OUT YOUR PARLOR FIRE, WHAT WOULD YOU DO?

Editor "Domestic Engineering":—What would you do, if you came home from work on a cold winter day, went up stairs, used the closet, started down stairs only to

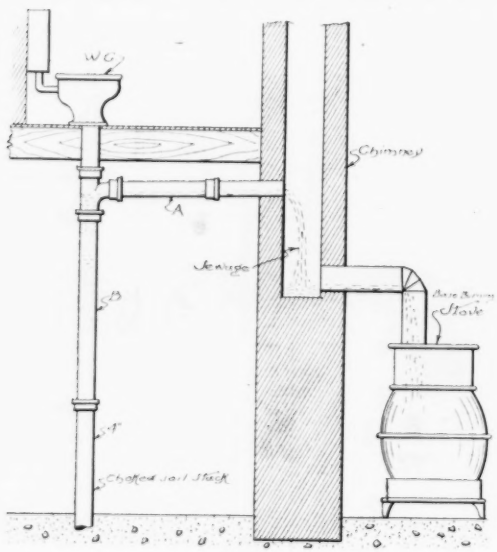


Fig. 1.

have your wife meet you with a "good-sized club" and tell you that, when you flushed the closet you had put out the fire in the base burner? What would you do?

This sounds impossible, but this very thing happened in our quiet little city a few days ago. We have a plumber in this city that has a mania for venting his stack line into the chimney, even if it is necessary to use an extra joint of four-inch soil pipe to do it. Fig. 1 is a rough sketch of how it happened.

It is not necessary to inform you that this will never happen again, at least in this man's home. The one experience has been a life-lesson in this makeshift type of plumbing.

Ohio. J. A. J.

The plumber's error is running the vent pipe, A, into the chimney. He should have continued the soil stack up to and through the roof for ventilation. Plumbing codes prohibit the venting of soil and waste pipes into chimneys.

The cause of the drowning of the fire was a chokage of the soil pipe. Perhaps it became frozen, or perhaps it simply became choked in the ordinary way. Anyhow it did become choked, then soil stack, B, filled with water, and overflowed through vent, A, into chimney.

It happens that the chimney flue does not extend down below smoke pipe from stove, consequently all water from closet when B is choked simply falls into the stove. That is why the fire was drowned out. And that is why the wife got after her husband with a club. Mr. "J" asks: "What would you do?"

Frankly, we don't know. We never were in such a predicament.

ILLINOIS MASTER PLUMBERS IN CONVENTION AT BLOOMINGTON, ILL.

The Illinois Master Plumbers' Association held its twenty-sixth annual convention at Bloomington, Ill., on Tuesday, Wednesday and Thursday, January 22nd, 23rd and 24th, with a good attendance.

The convention was called to order in the Sweeting Building at 10 o'clock Tuesday morning by President Bernard Gause, of Jacksonville, Ill. This was followed by the singing of "America," led by Prof. George Martin, of Bloomington.

Addresses of welcome were delivered by Mayor E. E. Jones, of Bloomington; William Johnston, president of the Bloomington Master Plumbers' Association; R. C. Baldwin, president of the Bloomington Association of Commerce, and J. H. Hudson, secretary of the Bloomington Association of Commerce, while the response was delivered by President Bernard Gause. This was followed by President Gause's annual report, which was read by J. W. Cannon, president of the Chicago Master Plumbers' Association, President Gause's voice being temporarily impaired on account of hoarseness.

At the afternoon session, J. F. Manion, of Freeport, read an interesting essay entitled "Our Journeymen." This was followed by committee reports and the reading of communications. Vice-President C. D. Brownell, chairman of the Educational Committee, thereupon delivered an instructive talk on "What The Plumber Ought To Do," and James S. Bailey, of "System," spoke on "How The Plumber Ought To Do It," emphasizing the value of modern accounting methods in business.

* * *

A complete report of this convention, accompanied by reproductions of many photographs, will be published in next week's issue of "Domestic Engineering."

Sheboygan, Wis.—A. F. Zurheide has purchased the interest of his partner, William Wunderlich, in the plumbing firm of Zurheide & Wunderlich, and Mr. Zurheide will in the future conduct the business under his own name.

DEMONSTRATION

How One Master Plumber Found the Road to Success by Emphasizing Quality Over Price

By William Robert Marshall

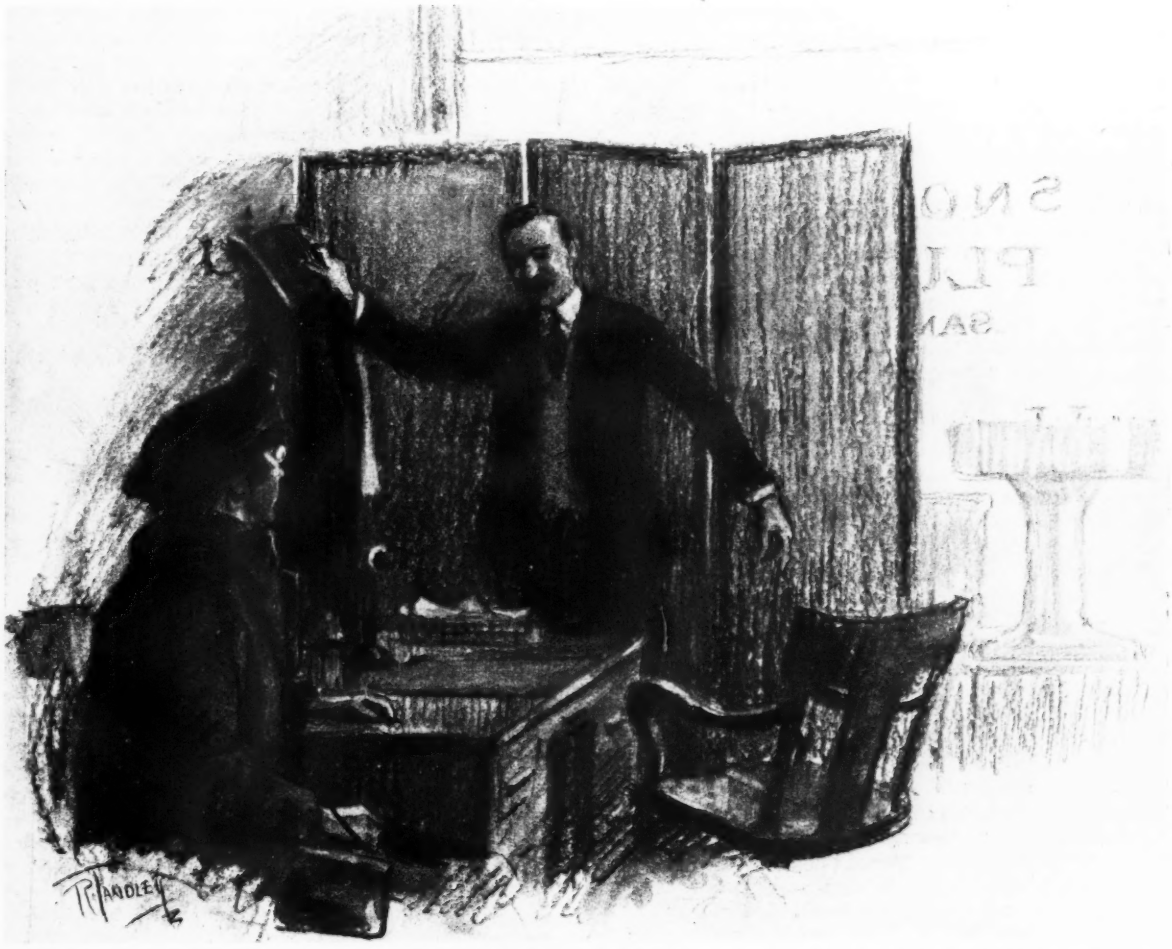
THE other day I got a *shock*, a real smashing, knock-out *shock*, but that's ahead of my story. Like most men who attempt by writing, lecturing or just simply talking, to help the other fellow over the road, once in awhile, when the road seems particularly rough, I get discouraged and feel that my efforts along those lines are simply lost motions.

"He makes them up or he scribbles for so much per word. He's a nut and his stuff is rot. Beautiful in theory, but—but in actual practice—oh, mama." That's the comment that floats back.

But the other day a plumber came in and threw his bank book on my desk and said: "Take a look at the past four weeks' deposits in that little book and then add them up—six hundred dollars, aint it?"

"Just about," I replied, still holding the bank book in my hand and gazing at him like a moon stricken youth—and wondering what in the world the game was all about.

"And fifty per cent. of that is profit," he added proudly, winking at me. Still I waited. "Do you remember what Marshall said at the San Diego convention about price and the demonstration of quality over price?" he quizzed.



"Suppose You and I run over to Your House and look at it. My machine is outside, and it will take only a few minutes. I can then give you a Price right there."

I said, "I guess I do." "Well then, boy, that's what did it, a demonstration of quality over price got me just six hundred cold bucks last month, and you will please notice there is no larger amount in the entire month."

And that's where I got my *shock*.

"Gee whiz," I said, "don't you tell the Committee on Progressive Business Educational Campaign anything about this, or they will offer me a job as National Lecturer."

"Put it in 'Domestic Engineering' and use my name," he dared me.

"Wouldn't be fair," I suggested.

"Why not?"

"Might put your competitors wise."

He blinked at me and then smiled. "See, if I care," he dared again.

"Come over here and sit down and tell me how you did it, before I can put it any place," I commanded.

"Now then, tell me about it," I asked as he drew up his chair.

"Let's start at the beginning," he suggested.

"Just what were your words about a plumber not taking any mental joy rides?" he asked perplexedly.

"Oh!" I laughed, "I said that it was a notorious fact that the plumber above all business men in the world is adverse to spending time or money for the study of his personal business benefit. Furthermore, he makes no mental excursions outside of his hereditary habits, and until such time as he is awakened to the fact that the future of the plumbing business depends upon it being placed upon a sound business basis and upon some other foundation than that of 'price,' he will not make much progress."

"That's the dope," he snapped. "Well, I took a mental excursion and *stopped* trying to figure twenty-five thousand dollar jobs and everything else that came in sight, and went at it from an entirely different angle."

"Good for you," I exclaimed, as I slapped him on the back; and then he told me how he had been bucking up against contracting plumbing for the past two years without making any headway with it. "You said in your lecture that the way to make money was to make a demonstration of value over price, and I made up my mind that you were right, because a demonstration of *price* against *price* was a rotten proposition.

"Always is!" I replied, "but it's awful hard work sometimes to get men to see it. They talk volume, tonnage, quick turnovers and a lot of things, which are alright, if they carry a sufficient profit, but for a plumber to talk volume, and I mean by that the average plumber, no I will make it ninety-five out of one hundred plumbers, to talk volume is veritable rot. They try to kid themselves that some place along the line they will find a favorable break."

"Gospel truth—gospel truth," my friend assured me. "I have tried it and tried it hard and it wasn't for lack of capital, because I have all the backing I could use."

"Just how did you go about to make the change?" I asked.

He smiled whimsically. "Well, I guess the best way to explain it, would be to tell you about a single case, in fact, my first one after I decided to make the change, hey?"

"You bet," I agreed.

"The old way would be something like this," he began: "A man or a woman would come into the shop and say, 'How much will a 20x30 sink cost me?'

"'$5.75, I would say, and the time and material to put in.'

"'About how much will that be?' they would ask.

"'Can't tell,' I would answer. 'We charge you only *actual time and material.*"

"And—," I coached.

"Sometimes!—Sometimes!" he smiled, "they said 'put it in, and have a heart.' Well, this did happen, only I decided to work it differently, after hearing your lecture, and this is what I did."

"When the woman came in and asked me how much a 20x30 sink would cost. I said, 'have you one that needs replacing, or is this an entirely new one you want put in?'

"Oh, my old sink is all worn out, and I have been thinking of having a new one put in some day, if it didn't cost too much."

"Suppose you and I run over to your house and look at it, my machine is outside, and it will only take a few minutes. I can then give you a price right there."

"Oh, no, don't bother," she replied, "I was just going by and thought I would ask."

"No trouble at all," I assured her as I moved towards the door.

"Well, she went with me or I went with her, and I *sold* her a new sink and two new bibbs."

"Yes," I muttered and waited.

"Well, I have been going after every one of them just the same way. If any man or woman comes into my place and wants *any plumbing* work done, you can rest assured that I am the boy that is going to do it. You see, it gives me a chance to make that demonstration you were talking about. Sometimes it is a demonstration of salesmanship, and sometimes it's a demonstration of value,—but it is a demonstration of something besides price, and take it from me, price has had the last demonstration it is ever going to get from me."

"Doesn't it seem like small business to you, after doing so much big work?"

"You mean *trying* to do so much big work, don't you? Say, $600 per month isn't so small, when you make a sufficient profit, let me tell you."

"So the lecture really and truly did help you, did it?" I couldn't help asking again.

"You bet your life, and Mr. 'Price' and I have parted company for good. Guess that's taking a mental joy ride ain't it? Just came in to tell you; wanted you to know and you can put it in 'Domestic Engineering,' and *use* my right name," he winked, as he went out the door.

February 5, 6 and 7, 1918—The annual convention of the Ohio State Association of Master Plumbers, at Dayton, Ohio.

February 13, 1918.—The winter meeting of the Eastern Supply Association, at the Hotel Astor, New York City.

February, 21, 1918.—The winter meeting of the Central Supply Association, at the Auditorium Hotel, Chicago.

February 22 and 23, 1918.—The annual convention of the Montana State Association of Master Plumbers, at Butte, Mont.

March 20 and 21, 1918.—The quarterly meeting of the National Association of Brass Manufacturers, at French Lick Springs, Ind.

April 18, 19, and 20, 1918.—Fifth National Foreign Trade Convention, at Cincinnati, Ohio, with headquarters at the Gibson Hotel.

May 13 and 14, 1918.—The ninth annual convention of the National Pipe and Supplies Association, at Cleveland, O., with headquarters at the Hollenden Hotel.

LEGAL QUESTIONNAIRE

Every Effort Will be Made to the End That These Answers May be Authoritative—However, We Cannot Assume Any Responsibility Because of the Very Nature of the Service, Which Is Rendered Without a Personal Interview

By "The Judge"

Editor, "Domestic Engineering:"—I would like to use your new column of legal questions and answers to find a way out of a predicament which I find myself in. I took a pretty good-sized contract for the installation of a steam-heating plant in a residence. All my dealings were with Mr. Jones, we will call him. After the work was finished Mr. Jones paid me some cash, on account, and gave me two notes payable to himself, and endorsed to me, for the balance. I find that the notes are worthless, that Mr. Jones is not a responsible party financially, and that the title to the house stands in the name of Mrs. Jones. The only thing Mrs. Jones had to do with the entire transaction was to have one of the radiators changed from one side of the room to the other. I have been told that having done business with the husband, I have no claim against the wife and that in addition, as I have taken notes from the husband, if I had any rights against the wife, I have lost them. Naturally, I would like to know whether I can successfully bring suit against the wife, as the property which she owns is valuable and worth many times the amount of my bill, large as it is.

L. M.

Answer:—You find yourself in a situation which is not at all infrequent. Business men, eager for work, often fail to pay sufficient attention to the matter of the ownership of the property, upon which they are to do work. However, in this particular case, I believe that you can collect your bill from the wife, if you care to push the matter hard enough.

If any person except the husband had made the contract with you, the situation would have a different aspect. The law, however, says that it requires very little evidence to show that the husband was acting as agent for the wife and that you, when you discovered who really did own the house and for whom you were really doing the work, have a right to claim payment from the wife.

In one case which has recently come to "The Judge's" attention, involving very similar facts, the court allowed the contractor to recover from a wife, although the husband testified that he was making a present to his wife of a new coat of paint for her house and that he was not acting as her agent. The wife testified to the same effect. About the only thing in the contractor's favor was the fact that the wife had chosen the color of the paint.

Now with regard to the notes which you accepted. In some states it is law that if you take a note, and have no other understanding about the matter, the note is taken as payment and you must sue, if at all, on the note, rather than on your original claim. Even if you are doing business in a state in which such is the law, still I am of opinion that you can disregard the notes and bring suit against the wife. Of course, if you do, you will have to deposit the notes in court before you can have a judgment against the wife, otherwise you would be in a position to get payment from the wife and then turn around and transfer the notes to an innocent holder for value.

Your answer to the defense that you had taken the notes in payment would be that when you discovered that the wife was the real principal in the transaction, you had a right to disregard entirely the agent's notes, and go against the real party in interest. This is what is called, in legal terms, the doctrine of undisclosed principal.

"The Judge" has had not a few such cases from contractors in the plumbing and heating business, and has usually been able to show such a clear case for his client that it was not necessary to go into court.

The principles involved are very convenient to know, for much real estate is held in the wife's name these days. If, when you are doing work in a residence, a wife tries to have a finger in all that is going on, don't kick, but think to yourself that she is perhaps forging a link in the chain, which will bring you your money after you have finished.

Editor "Domestic Engineering":—Is there any way in which I can protect myself, when installing fixtures and materials, so that I can take them out, if I am not paid? I have been told that, if I install materials and fixtures, I cannot take them out against the objection of a man holding a mortgage or a purchaser of the property.

A. L. B.

You can protect yourself, as you suggest, in most cases of the sort. Many of the states have passed statutes providing for just such situations, and permitting you to file in the offices of the proper officials, usually the town or city clerk, a copy of your contract of conditional sale, sometimes called a lease.

These leases, so-called, are being used more and more in the building trades. You will find that almost all large concerns who install restaurant fixtures, for instance, as well as municipal gas companies, always require a lease of their property which protects them if they are not paid.

One restaurant supply house, to the knowlege of "The Judge," goes so far as to use a form of lease which pro-

vides that the fixtures shall be returned to it at the end of the lease, but that the purchaser may then buy the fixtures for $1, if he wishes and is not in default. This means of protection and the length to which this particular supply house has gone to make its lease as much like a real lease as possible, are the result of the habit of the courts to construe a so-called lease as in fact a contract of conditional sale. Your rights under a lease, which is, in fact, a lease, are more favorable to you than they would be if you had merely a contract of conditional sale, especially if the purchaser becomes involved in bankruptcy proceedings or an attachment is made by another creditor.

In some of the states the statutes, covering such matters, provide that such contracts of conditional sale shall not be valid against a mortgagee or a subsequent purchaser, unless they are recorded in the proper public office. Where such statutes are in force, it is almost essential that you get the consent of a party holding a real estate mortgage on the property to which the materials are attached, before starting to do the work. The law looks with great favor on the rights of a mortgagee and will not let you harm his security, if it can see its way clear to prevent it.

The question whether you would have a right under any circumstances to take out any fixtures or materials, which you had attached to real estate, is such a close question in many cases, and the law varies so in different states, that it is best to seek the advice of your local attorney.

There is no one thing that the writer knows of, which has a greater tendency to make a purchaser pay his bills, than leases or contracts of conditional sale. Men in the building trades line would do well to use them frequently and often.

The initial expense of an attorney's advice and the drawing of a form of lease, or several forms to use under different circumstances, is cheap insurance against bad bills on your ledgers. If you find a man in the building line who takes such precautions, you will invariably find also that he is successful. The bigger firms are using such methods of protection. The smaller firms need such protection more than their larger brothers.

Late News from St. Paul, Minn.

Recent St. Paul plumbing contracts include one to John J. Bailey on a brick building at Robert and Third Streets. The contract amounts to $700.

E. T. Kolar took out a permit for plumbing work on John Molin's two-story building at 650 Sherburne Avenue. The value of the work is placed at $1,800.

I. Levinsohn will install the plumbing in the two-story frame building of J. Efrese, Indiana and South Robert Streets, and in E. Olkern's frame building at 362 East Robie Street.

W. H. Dix has the contract for plumbing work on John Gelin's new residence at Ashland and Saratoga Avenues.

L. J. Rozycki has the contract for the plumbing work on two two-story frame buildings, being erected by Mr. Anderson at 1354 Sargent Street and at Sargent Street and Hamlin Avenue. He also is doing the plumbing work on a frame building at Berkeley Avenue and Underwood Street.

George Regelsberger has the contract for installing plumbing in Louis Johnson's residence at 120 Manitoba Avenue.

Obituary

Howard Campbell.

Howard Campbell, of the plumbing firm of Garr & Campbell, of Denison, Tex., died at his home in that city on Monday morning, January 7th, after a short illness.

Holmes Gillan.

Holmes Gillan, a well known master plumber of Chambersburg, Pa., died at his home in that city last week in his fifty-first year. Mr. Gillan was a bachelor and was probably the best known man in his town, partly on account of his pleasant disposition and partly on account of his size, weighing, as he did, 400 pounds.

Alvah J. Kelley.

Alvah J. Kelley, who previous to his retirement from active business some years ago, had for more than a quarter of a century conducted a steamfitting establishment at Peabody, Mass., died January 15th, at his home in that city, aged 84 years. He was born in Peabody, and his son, Elbridge G. Kelley, now conducts a plumbing business in that city. Mr. Kelley gave up his business 20 years ago because of poor health, and for the past three years his illness had been more marked.

Joseph M. Babbitt.

Joseph M. Babbitt, of New Bedford, Mass., for many years widely known as a steamfitter and boiler maker, died at his home in that city, on January 12th, in his 73rd year. Mr. Babbitt was born in South Dartmouth, near New Bedford, and after leaving school learned the steamfitting and boiler making trades. On the retirement of his employer, Mr. Babbitt, who had come to be foreman, associated himself with Patrick F. Wood and George B. Oswell, and the three purchased the business, conducting it under the name of Babbitt, Wood & Co., from 1880 to 1907. In 1907 the partnership was dissolved and two firms formed, the Babbitt Steam Specialty Co., and the P. F. Wood Boiler Works. The late Mr. Babbitt retired from active business in 1912, and his interests in the specialty company were taken over by a nephew, Isaac M. Babbitt.

John J. Hannegan.

John J. Hannegan, well known and popular master plumber of New York City, died at his home in that city, on Monday, January 21st. Mr. Hannegan was about fifty years of age, and was highly esteemed by all who knew him. He has been in business for the past quarter century and an active man in association affairs, local, state and national. In the National Association he held many important committee appointments. He was judge of elections at the Galveston convention. In the state body his sound judgment and advice were always sought. He recently served as president of the Manhattan association for two terms. Mr. Hannegan was a member of the New York Athletic Club and in his younger days was an athlete of no small record. The funeral took place from his late residence, 2650 Bainbridge Avenue, New York, on Wednesday morning, January 23rd. Services were held at the Roman Catholic Church of Our Lady of Mercy on Marion Avenue. Many of his association colleagues attended, headed by President Joseph H. Jasper, of the Manhattan association. His wife and five children survive him.

IOWA MASTER PLUMBERS *in* THREE-DAY CONVENTION *at* WATERLOO, IA.

Despite Bad Weather Conditions, Leading Men of the Trade in "Hawkeye" State Gather to Discuss Business Problems—W. C. McCarten, of Marshalltown, is Elected President

DESPITE late trains and inadequate transportation facilities due to recent snow storms, nearly one hundred delegates were on hand when the 30th annual convention of the Iowa State Association of Master Plumbers was opened at the Irving Hotel at Waterloo, Ia., on Tuesday morning, January 15th.

Interesting papers bearing on present-day business problems were read and discussed from different angles. The old-time association spirit prevailed during the sessions which were held Tuesday, Wednesday and Thursday, January 15th, 16th and 17th, and proved profitable to all who attended the convention.

Tuesday Morning Session.

The convention was called to order at 10:30 a. m. by President J. H. Fenton. He introduced the Rev. H. E. Parr, who delivered the invocation, which was followed by the singing of "America" by the entire gathering.

Mayor W. R. Law, of Waterloo, extended a hearty welcome to the delegates and invited them to make merry during their sojourn in the city.

Herman Reich, president of the Des Moines Master Plumbers' Association, and Charles Van Vleck, secretary of the Waterloo Commercial Club, responded ably to the Mayor's welcome.

At the Iowa Master Plumbers' Convention.—From Left to Right: Retiring President J. H. Fenton, Cedar Rapids; Director Roy P. Kerker, Davenport; National President, L. McNamara, St. Louis; President-Elect W. C. McCarten, Marshalltown; Vice-President J. M. Wilson, Washington, Iowa; Secretary S. C. Smith, Waterloo, and John R. King, of Keokuk, Iowa.

President Fenton then proceeded to the appointment of the following convention committees:

Auditing: Roy P. Kerker, Davenport; R. A. Ellis, Waterloo; and J. M. Wilson, Washington.

Credentials: B. A. Kubias, Cedar Rapids; C. W. Crouch, Boone; and E. Betsworth, Cherokee.

Resolutions: R. J. Byrkit, Des Moines; M. J. Corcoran, Des Moines; and M. J. Fisher, Sioux City.

Tuesday Afternoon Session.

At the opening of the afternoon session, several letters and telegrams of congratulation and greeting were read from the Illinois, Minnesota and Indiana associations, as well as individual communications from National Treasurer C. J. Herbert, of Chicago, and Secretary W. C. Haviland, of the Illinois Association.

Waterloo Master Plumbers at the Iowa Master Plumbers' Convention in Waterloo.

Following the reading of these letters and telegrams, W. C. McCarten, of Marshalltown, delivered an interesting address.

Wednesday Morning Session.

The morning session was given over to addresses by leading members of the organization. John R. King, of Keokuk, read a very interesting paper on Shop Practice.

National President L. McNamara, of St. Louis, who was introduced by President Fenton, addressed the delegates on the "Progress and Value of the National Association." He referred to the aims of the organization in its bulletin, which is being sent each month to the members. He explained that it was an educational chain proposition, which would assist each member and instill enthusiasm and interest in the value of co-operation between local associations and the national organization.

Wednesday Afternoon Session.

At the afternoon session, R. H. Holbrook, a member of the state board of fuel conservation, gave a very illuminating talk on the saving of coal, the reasons for the present shortage and how the master plumbers and master steamfitters can do their bit in fuel saving and at the same time assist their customers in increasing the efficiency of heating plants. He impressed on the delegates, the great importance of cleaning out flues, and said that from actual tests it has been found that one inch of soot is equal to five inches of asbestos as a non-conductor of

heat. Mr. Holbrook also spoke of the value of reading trade papers. He spoke of the progress which has been made in heating apparatus and referred to the history of heating, advising every one present to read an article by John A. Ward on this subject, which appeared in the Annual Review Number of "Domestic Engineering," December 15, 1917.

H. D. Cowles, secretary and treasurer of the Waterloo

Some of the Delegates from Cedar Rapids, at the Iowa Master Plumbers' Convention.

Mfg. Co., delivered an illustrated talk on "Business Systems and Overhead Expense," followed by a general discussion along that line by the delegates.

Thursday's Sessions.

The greater part of the morning session was given over to the reports of standing committees, followed in the afternoon by business discussions, which were concluded with the election of officers. Those who will head the association during the ensuing year are:

President, W. C. McCarten, Marshalltown; vice-president, J. M. Wilson, Washington; treasurer, W. D. Hogan, Sioux City; secretary, S. C. Smith, Waterloo; board of directors, Frank E. Nelson, Fort Dodge; G. W. Carpenter, Cedar Rapids, and J. M. Wilson, Washington.

Cedar Rapids was chosen as the convention city for 1919.

Entertainments.

Tuesday evening the delegates attended the Waterloo theater, where a boxing contest was staged and which afforded much amusement. The preliminaries were short bouts between future champions of local and nearby towns. Owing to late trains one of the combatants did not arrive, and as the crowd became impatient, the "John McCormack" of the Iowa Association, otherwise known as F. M. Garvey, of Mason City, went on the stage and into the ring and sang his famous hit: "Throw Him Down McClosky."

After the boxing contest, which was full of "pep," the delegates gathered at a smoker at the Irving Hotel, where they were entertained by exceptionally good talent. Jack Jones sweetened the evening air with his "wild man" song, which evoked great applause and which will long be remembered by all who heard it.

W. C. McCarten contributed to the evening's entertainment with some live Irish stories.

Wednesday evening a splendid banquet was served to the delegates and their guests at the K. of P. hall. Fred L. Northey, of the Waterloo Chamber of Commerce, acted as toastmaster. Ben F. Swisher, of Waterloo, delivered a patriotic address, which evoked much applause. Vice-president J. M. Wilson spoke briefly and was followed by National President L. McNamara, whose words of patriotism elicited vigorous applause. Herman Reich, president of the Des Moines Association, President-Elect W. C. McCarten, and Retiring President J. H. Fenton made brief addresses, after which the national anthem was sung.

The state officers and the national president were entertained at luncheon on Thursday by the Mason City delegation, which had 100 per cent of its membership present.

Sales Representatives in Waterloo.

The following representatives of the supply trade were in Waterloo at the time of the convention: W. W. Getts, district representative of the Milwaukee Air Power Pump Co.; Chas. M. O'Brien, Scott Valve Co., Chicago; B. O. DuBois, National Sewer Pipe Co., Webster City, Ia.; O. Frisbie, Globe Machinery & Supply Co., Des Moines; J. W.

Some of the Davenport Delegates at the Iowa Master Plumbers' Convention in Waterloo.

Wintherbotham, Kellogg-Mackay Co., Chicago; G. R. Shaw, James B. Clow & Sons, Chicago; Clarence F. Martin, of H. P. Martin & Sons, Owensboro, Ky.; R. J. Byrkit, Bell Specialty Co., Des Moines; A. J. Sugerman, United Brass Mfg. Co., Cleveland; L. E. Trainor, Prier Brass Mfg. Co., Kansas City, Mo.; R. C. Hamm, Good Mfg. Co., New York; H. D. Cowles, secretary and treasurer of the Waterloo Mfg. Co., Waterloo, Ia.; Dan Morgan, of Globe Machinery & Supply Co., Des Moines, Ia.

G. W. Carpenter, of Cedar Rapids, Iowa, has been awarded the contract to install plumbing and heating systems in a public school building to be erected at Conroy, Iowa, on which work will be started as soon as the weather permits. Mr. Carpenter also has received the plumbing contract in connection with the Knight Templar Building, which will be erected at Spirit Lake, Iowa

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Plans are being worked out for installing a $40,000 indoor swimming pool in Louisville through the Board of Park Commissioners and the War Recreation Board for the benefit of the public and the soldiers at Camp Zachary Taylor, it being planned to place the pool in either Central or Shelby Park, and to allow the soldiers exclusive use of the pool on Saturday, Sunday and Wednesday afternoons, their off afternoons, and allow the public the use of the pool during the rest of the week, making a nominal charge for admission. The local Board of Park Commissioners offered to put up $20,000 or one-half of the estimated cost, and C. C. North, representing the War Recreation Board, has taken the matter up with the men higher up. It is planned to construct a swimming pool 40 by 100 feet.

The DAY BOOK *of the* BON TON DE LUX PLUMBING & HEATING CO.

Hank Olson and Jerry Dolan Formed a Partnership and Opened a Plumbing and Heating Business January 1, 1918 —Dolan Has Decided to Keep a Day Book, in Which He Records the Interesting Happenings of the Day

Continued from Page 118, in the January 19th Issue.

January 15, 1918.

I was down to the supply house this morning getting a couple of fittings, and the cashier was smiling like the cat when she has just chewed up a nice spring mouse, and he was opening letters to beat the band, and every one of them had a check in it. Some of the other plumbers kept coming in and they also coughed up, so I guess the 15th of the month isn't a poor day in a supply house or nothing. Well me and Hank don't have to pay them anything this time, but next month they'll have us for a few iron men.

January 16, 1918.

A woman came in this morning and wanted to know about having a hot water tank installed, the one, she had, had busted, and so I told her that me and Hank would put one in for twenty dollars. She thought that was a lot of money, and I used to think so too, until me and Hank went into business, but now I can see that twenty bones is nothing at all for a job like that, and finally she said to go ahead, and then she asked me if it was guaranteed and I said: "Sure it's guaranteed for a year." Then she says, you write that on your bill when I pay it, and so I sent Hank out to her house with the tank, and he put it in.

January 17, 1918.

This morning that woman called me up and says the tank is leaking, and I says: "What tank?" and she says: "The tank what you put in yesterday," and I told her it couldn't leak, because it was guaranteed, but she kept hollering, and so I run up there, and it was leaking all right. So I went back and got Blackwell, and me and him went up there and looked at it, but it kept right on leaking, and the woman says what are you going to do about it, and Blackwell says we will send up a new tank and the Bon Ton De Lux Plumbers will install it this afternoon, and so Hank made the switch, and it wasn't no flying switch like these railroad men tell about. It took about three hours for Hank to drain the tank and disconnect it and put in the newest one and fill that and test it, and then we sent the bum tank back to the Century.

January 18, 1918.

Blackwell came in this morning and I says to him: "I just got a bill for that second tank that was sent up to that woman's house," and he says: "Yes that's right you will get a credit for the first one when it gets back to the warehouse." And then I happened to think about the time that I had spent going up there, and Hank's time making the switch four hours anyhow and a couple of car fares each way, and I asked Blackie who was going to stand for that, and he says that is up to you, and then him and me chewed the rag about it, and he showed me a little book, in which it says that these tanks ain't guaranteed at all, and so if those tanks keep going wrong every month or every week or every day for the rest of the year, I suppose me and Hank have got to keep running up there and making those almost flying switches. Well, when me and Hank was working for Old Man Flannigan we never had to worry about anything like that, we just changed those tanks and things and turned in our jobbing slips and time cards, and the Old Man and the book-keeper never said nothing but just paid the freight, but we ain't got any Old Man Flannigan around this joint, and me and Hank have got to go down in the old sock whenever we hits lemons like this one. I always thought there was something rotten about this business, and now I know what it is.

January 19, 1918.

Not much doing today. Not even a freeze up or a bibb to pack. The weather man must have forgot that we got to make a living, and it looks like these supply houses are putting "never wear out" gaskets in their bibbs.

January 20, 1918.

Me and Hank was both flat last night, and we had to draw a ten apiece, and it came pretty hard after doing nothing Saturday except sit around the office and listen to the salesmen telling about the big jobs and the big profits that all of the other plumbers in town were pulling down. This is Sunday again, and I went down to the store, and after awhile a fellow pounded on the door and wanted to get in, and so I unlocked the door and he came in and he says: "My name is Johnson, and I live out near Minnehaha Falls, and the little piece of pipe inside of my heater is busted, and I want to borrow a couple of wrenches so that I can get it out, and loan a couple of plugs to put in the tank, and there is no use buying them, because I am only going to use them this once and will bring them back tomorrow." And so I thought he was going to give us a job putting in a coil and that would be nuts for Hank five miles out there and five miles back, and nothing to do but sit in the street car and earn a dollar an hour doing it, and so I got a couple of 14-inch Trimos and a couple of one-inch plugs and a couple of ¾-inch plugs, and he says: "Much obliged I will bring these back Monday or Tuesday."

January 21, 1918.

Johnson must have forgot the way back to the Bon Ton De Lux plumbing shop, because he didn't come back with those two wrenches and the plugs, and so after dinner I went over to Old Man Flannigan's, and when he

(Continued on Page 158.)

HOW *the* HOUSEHOLDER CAN SAVE COAL

Rules for Handling Heating Boilers and Furnaces, Given by Committee on Fuel Conservation of the Illinois Chapter of A. S. H. and V. E. Heating Contractors are Urged to Give these Rules to Their Customers

SIMPLE rules for handling boilers and furnaces in the homes are presented herewith, through the courtesy of the Illinois Chapter of the American Society of Heating and Ventilating Engineers.

These rules are not intended for large consumers, but for householders, and not for apartment janitors, but for laymen who know little of the science of coal saving.

The suggestions were compiled by a committee of experts selected at the last meeting of the society, including J. F. Tuttle, chairman; James H. Davis, and Charles G. Lamb. The society suggests that small consumers should follow these suggestions.

Here are the rules, which mean both coal and dollar saving:

Soft Coal.

1. Thoroughly clean flues and passages of boiler or furnaces at least once a day.
2. Steam boilers should be blown out under pressure to remove grease and dirt. This is very important and should be done at once by an experienced man. Hot water plants should have water renewed in fall before starting heating season.
3. Clean base of chimney and smoke pipe once a year.

Method of Firing.

1. Fire often and lightly, keeping grates fully covered.
2. Do not spoil fire by stirring it around or mixing it up.
3. Use slice bar under fire bed on top of grates, lifting only enough to break or crack open the mass. Keep fire free from clinkers.
4. In large boilers or furnaces use the alternate method of firing; first, one-half of grate, and next, firing the other half. This is done to have a bright fire to assist in burning the gasses from the coal just fired and to make heat until the fresh coal ignites.
5. Don't smother your fire.
6. Use the smaller prepared sizes of coal if possible. If you cannot get the small coal, break the large coal into small lumps. Wet all soft coal before firing.
7. The best way to fire round boilers or furnaces is to get the house warm by firing lightly and often. Then fill fire pot full of wet coal. Next take a piece of pipe or broom stick and poke a hole down through the fuel bed to the grate. Carefully withdraw and leave hole in fuel bed. Check off the draft so that it will not burn too rapidly. This hole soon will carry a large blue flame, which is gas driven off from the fresh coal. If this method is followed, the gas will not be lost up the chimney.

Ashes.

1. Don't shake grate violently. It wastes coal.
2. Keep the ash pit clean.
3. Never allow ashes to get within six inches of grate.
4. Remove ashes from last shaking before shaking again.

Draft.

1. Be sure your chimney is large enough, high enough and absolutely tight.
2. Do not allow any connections to be made to the heating chimney, excepting the heating boiler or furnace alone.
3. Regulation of draft is very important in saving coal and should be attended to at once by an experienced man. If you cannot regulate your draft be sure to call for assistance.
4. The draft to ash pit should not be open any more than necessary to maintain the desired temperature.
5. Do not open ash pit door to increase draft. Use draft damper under grate provided with boiler or furnace for this purpose.
6. Check draft must not be open unless draft damper under grate is closed.

Hard Coal.

1. Thoroughly clean flues and passages of boiler or furnaces at least once every week.
2. Steam boilers should be blown out in same manner recommended for soft coal. Also clean base of chimney in same manner.

Method of Firing.

1. In using anthracite coal a bright fire should always be kept if you wish heat. In building up a fire use a small quantity often with good draft until the fire pot is full to the center of fire door. Draft then can be checked to hold the heat desired.
2. A hard coal fire should never be disturbed by stirring or breaking up with a poker.
3. Remove clinkers, if any, through grate or clinker door.
4. Use size of coal recommended by maker of boiler or furnace. Don't wet hard coal.

Ashes.

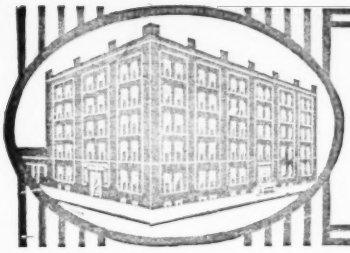
Rules same as for soft coal.

Draft.

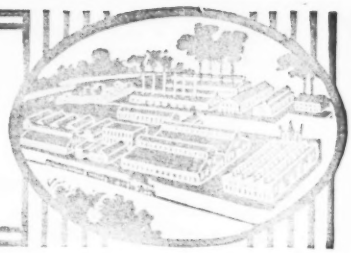
Rules same as for soft coal.

General Remarks.

1. Cover boiler and pipes with asbestos or other insulation; also weather strip your windows and doors or stuff cracks with cotton.
2. Keep your room at 68 degrees (best heat for health).
3. Heat only the rooms you use all the time.
4. Close bed room doors when windows are open and shut off radiator.
5. When any room is kept at a lower temperature than balance of rooms keep door closed.
6. Protect a hot water radiator in room when windows are open by throwing a blanket or rug over radiator. Radiator may then be shut off without fear of freezing.
7. Use hot water sparingly, as every gallon of hot water wasted means loss of coal.



Among the Wholesalers and Manufacturers



THE CENTRAL SUPPLY ASSOCIATION CHANGES DATE OF ITS WINTER MEETING.

The winter meeting of the Central Supply Association will be held at the Auditorium Hotel, Chicago, on Thursday, February 21st 1918, and the Executive Committee will hold its meeting on Wednesday, February 20th. The Executive Committee made this change, postponing the meeting one day, owing to the fact that it was thought more convenient for the members to leave home a day later due to the fact that commercial establishments are closed Mondays up to and including March 25th.

NOW THE "RAYMOND LEAD WORKS."

The Raymond Lead Co., of Chicago, announces that it has changed its name and will hereafter do business under the name of the "Raymond Lead Works." There has been no change in the ownership or management, and the business will be conducted on the same lines as for several decades.

NOW THE ELGIN BRASS CO., INC., OF CLEVELAND, O.

The Elgin Brass Company, Inc., of Cleveland, O., announces that it has succeeded to the business of the Elgin Brass Co., of New York City. The company's offices, warehouse and factory will hereafter be located at 1111 Walnut Avenue, Cleveland, O. John A. Mangan will continue to act as president of the new corporation.

KELLOGG-MACKAY CO.'S SALESMEN'S CONVENTIONS.

The Kellogg-Mackay Co., of Chicago, held a two-day convention of its salesmen at its general offices in this city on Monday and Tuesday, January 21st and 22nd, while the salesmen connected with this company's branch in Minneapolis, Minn., held their annual convention in that city on Wednesday and Thursday, January 23rd and 24th.

CELEBRATES SIXTY-THIRD ANNIVERSARY BY OPENING NEW BRANCH SUPPLY HOUSE.

The L. Wolff Mfg. Co., of Chicago, will celebrate the sixty-third anniversary of its establishment by opening a new plumbing and heating supply house at the corner of Lincoln Street and Plummer Avenue, Hammond, Ind. The new supply house will open its door on or about February 1st. Charles A. Perry has been appointed general manager, and William Washausen, assistant manager. Mr. Perry has been connected with the L. Wolff Mfg. Co. for 25 years, and Mr. Washausen also has been connected with the Wolff company for many years. The L. Wolff Mfg. Co. was established in 1855 and is now employing about 3,500 men. Its foundry in Chicago covers a floor space of 14 acres and its factory in this city covers 225,000 square feet of floor space. The company has branches in St. Louis, Denver, Omaha, Dallas and Minneapolis.

ANNUAL MEETING OF BRANCH AND PLANT MANAGERS.

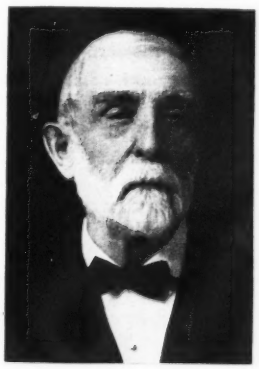
The annual meeting of the plant managers and branch managers of the United States Radiator Corporation was held at the concern's general offices in Detroit, Mich., on Tuesday, Wednesday and Thursday, January 8th, 9th and 10th. The meeting was very interesting, reviewing, as it did, a successful year just ended and formulating plans for the future.

THE ANNUAL CONVENTION OF CENTRAL BRASS MFG. CO.'S SALESMEN.

The Central Brass Mfg. Co., of Cleveland, O., recently held its annual sales convention, attended by its entire sales force from all parts of the country. The convention was in session one week. The company's salesmen are counting on 1918 to eclipse all past years. To them the outlook for big business was never more apparent, they claim. The banquet which closed the convention was a fitting climax to a well-spent week.

E. B. BADGER CALLED BY DEATH.

Erastus B. Badger, founder of the E. B. Badger & Sons Co., of Boston, Mass., died at his home in that city, on Tuesday, January 15th, in his 90th year. Mr. Badger was born in Boston and had always lived there. When a boy he wanted to go to sea, but his father objected and apprenticed him to a coppersmith. At the age of 20 he was made foreman of his employer's establishment because of his unusual ability and energy, and a short time later he was taken into partnership. Some years later the E. B. Badger & Sons Co. was formed and he became president, which position he retained until his retirement from active business about eight years ago. This company was originally a coppersmithing company, but is now manufacturing copper boilers and tanks as well as chemical apparatus. Mr. Badger married early in life and had eleven children, seven sons and four daughters. All of the sons, two of them officers of the Badger company, and one daughter survive. He was a staunch sup-



The Late E. B. Badger.

porter of nearly every branch of charitable work in Boston and vicinity.

BROWN-WALES CO.'S SALESMEN IN ANNUAL BANQUET.

The annual banquet of the salesmen of Brown-Wales Co., of Boston, Mass., was held at the Boston City Club, on Friday evening, January 11th. Covers were laid for thirty men and dinner was served at 6 o'clock. William Q. Wales, president and treasurer of the company, delivered the speech of the occasion. Following the banquet the "boys" all enjoyed a theater party at a local playhouse.

WATER SUPPLY SYSTEMS SHOWN AT "BETTER HOMES" EXHIBIT.

The Burnett-Larsh Mfg. Co., of Dayton, O., arranged an elaborate display at the "Better Homes" Exhibit recently held in Grand Rapids, Mich., including two water

Burnett-Larsh Mfg. Co.'s Display at the "Better Homes" Exhibit in Grand Rapids.

supply systems and a deep well outfit. The display attracted much attention, and the company expects that it will help to carry the gospel of comfort and cleanliness to many rural homes in that part of the country.

R. K. Bowman, first vice-president of the J. L. Mott Iron Works, of New York City, visited his company's Chicago office last week.

W. S. Babson, manager of the Peerless Pacific Co., of Portland, Ore., passed through Chicago this week on his semi-annual visit to his Eastern connections.

H. P. Martin, founder of the firm of H. P. Martin & Sons, of Owensboro, Ky., has the sympathy of his many friends in the trade on account of the death of his wife, which occurred recently at their home in that city.

E. W. Sanborn, manager of the Chicago office of the Commonwealth Brass Corporation, and the Detroit Range Boiler Co., both of Detroit, has recently returned from a successful business trip through Minnesota, Wisconsin and parts of Iowa.

L. C. La Fleur has resigned his position with the Chicago office of the Standard Sanitary Mfg. Co., of Pittsburgh, and joined the sales force of the Chicago office of the Wheeling Steel & Iron Mfg. Co., of Wheeling, W. Va.

Daniel Martin Kagay has resigned as manager of the publication department of S. F. Bowen & Co., Fort Wayne, Ind., to accept a position in the sales promotion department of the American Radiator Co., Chicago.

E. S. Thompson, one of the founders of the Haynes-Thompson Co., of Philadelphia, has taken a position with the Thomas Maddock's Sons Co., of Trenton, N. J., and will be a valuable addition to the company's home office force.

Clarence F. Martin, of H. P. Martin & Sons, of Owensboro, Ky., spent last Friday, Saturday and Sunday in Chicago upon his return from Iowa, where he visited the most important jobbing centers. He was optimistic about the business outlook.

Peter N. Klein, formerly of the Fairbanks Co., of Albany, N. Y., has joined the sales force of the Thomas Maddock's Sons Co., of Trenton, N. J. He will cover the New York state territory, succeeding H. G. Miller, who will hereafter confine his attention to New England territory.

Waddill Catchings, formerly identified with the plumbing supply trade for some years as president of the Central Foundry Co., of New York City, has just been admitted as a general partner in the banking firm of Goldman Sachs & Co., of New York City.

Russell D. Knight, manufacturers' agent, 766 Drexel Building, Philadelphia, has just issued an attractive eight-page booklet, entitled "Good Things for Good People," illustrating goods manufactured by the several houses he represents

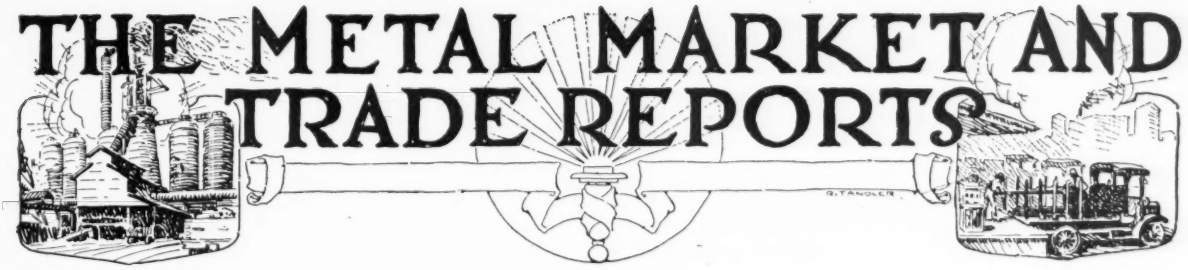
Ben Carl, who has been representing the Glauber Brass Mfg. Co., of Cleveland, O., for six years in the Great Northwest, will now represent this concern in Ohio territory. Lee Dinkel, who has been covering Ohio for more than fourteen years, has been transferred to the Chicago office of the Glauber company, while M. W. Wuesthoff, who has seen fourteen years of service with the Glauber company, and who has lately been stationed in San Francisco, will hereafter cover the Great Northwest for this company.

John R. Dulany, sales manager of the Chamberlain Co., Pittsburgh, Pa., covered some Canadian sales territory a short time ago. Transportation facilities, it appears, were not par excellence and Dulany upon approaching Montreal was obliged to try different forms of travel including sleighs and shoe leather. It is reported that while he was ambulating near Ottawa, armed with two grips, he took a graceful forward slide on the icy pavement, which precipitated him on his back, grips and all. The concussion was severe, but J. R. came up smiling.

THE MUELLER CHRISTMAS RECORD.

The H. Mueller Mfg. Co., of Decatur, Ill., following its annual custom, issued a very elaborate booklet entitled "The Mueller Christmas Record." The booklet contains several interesting articles, is copiously illustrated from photographs of the officers of the company, the Mueller men in Uncle Sam's service and the Mueller 20-year men, as well as photographs of the Mueller business home in Decatur in 1857 and in 1917. A picture of the Mueller Canadian plant is also shown.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

The outturn of steel has been curtailed considerably of late due to the extraordinary conditions prevailing. Mills are not only short of iron and coal and hindered by difficulties in transportation, but fabricating shops with outstanding orders for plates and shapes have received so many priority orders from the government, involving so much tonnage, that they are compelled to switch orders with mills to other specifications than their current contracts called for. This condition results in attempts to cancel orders for shapes, which the mills could not readily accede to without serious loss to themselves. Consequently there is friction between them and their customers. There has been recently an urgent demand for tool steel. This usually follows a large government order for finished products. The call for steel of all description is so heavy in comparison with the capacity of the mills to supply it, that nothing short of a priority order has much chance of acceptance. Railroads are receiving more consideration and are coming into the market with more confidence for rails and general equipment. The activities of mills and fabricators are concentrated upon shipbuilding products, which appear to have priority over others for the time being. Tht situation in pig iron does not improve and is worse now, if possible, than last week. The coke shortage is causing much complaint. Weather conditions are a little better, but the curtailment of fuel has been so great that it will take a long time to show perceptible improvement. Furnaces are running behind on contracts, and foundries and steel makers are feeling the shortage greatly. Not only has the curtailment in tonnage been material, but quantity has deteriorated owing to the poor quality of coke. In some cases this iron has been unsuitable for the purpose originally intended, resulting in disappointment of customers and embarrassment to producers. This has one redeeming feature for it has left free some iron for distribution, which would not otherwise have been available to manufacturers, who have been urgently in need of supply and who were not closely limited as to quality. Furnaces of late show some disposition to oblige customers for distant delivery, though they are not at all anxious for the business. In one or two instances also contracts for steel making iron have been taken for the first half, but on the whole the tonnage so placed has been light. Prices are based upon the old standard grade of No. 2 foundry and basic iron at $33 furnace and will be operative until April 1st. All prices are f. o. b. delivery at the furnace, and freight must be added to determine the exact price.

Copper Price Is Fixed Until First Of June.

On recommendation of the War Industries Board, President Wilson, last Tuesday, extended until June 1st, next, the price of 23½ cents a pound for copper, fixed September 21st. The maximum price was ordered continued on the condition that wages be not reduced, that the producers will sell to the Allies and the public copper at the price paid by the government, that necessary measures be taken to prevent copper from falling into the hands of speculators and that the producers exert every effort to keep up the production to the maximum of the past, so long as the war lasts.

Tin.

But little actual business is being done in tin, although inquiry seems to be more active. Consumers will have to make the best of the situation existing and accept what is being offered from the Straits and Hongkong as there is no prospect of release of Straits tin from London. There is no spot tin in the market. Singapore shipments were quoted at 70 cents for February. Chinese closed the week at 61½ cents for January-February.

Lead.

But little change in the lead market developed last week and the market is firm with an advancing tendency. The spot supply has been reduced by difficulties of transportation from the West, and if there were many buyers, a stiff advance would likely follow. Buyers appear to be well supplied for immediate requirements covered by contract and are not concerned greatly about the future. Spot lead is quoted at 7¼ cents, New York, and 6¾ cents, East St. Louis.

Spelter.

What arrangement was made with the government, as to an established price for the higher grades of spelter, has not yet been disclosed. It is believed that no fixed price will be made for prime Western. Demand is light and prices are quoted as follows: Spot and January 7.90 to 8 cents, New York, and 7⅝ to 7¾ cents, St. Louis.

New York Old Metal Market.

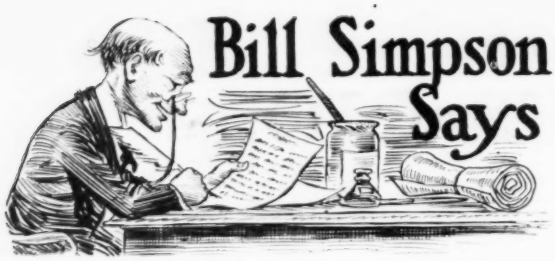
The following prices are current for old metals:

	Buying.	Selling.
Copper, heavy	23¾ to 23 cents	23½ cents
Copper wire	21 to 22 cents	23 cents
Copper, light	18½ to 19 cents	21 cents
Brass, heavy	14 to 14½ cents	16 cents
Brass, light	11 to 11¼ cents	12 cents
Lead, heavy	5¾ to 6 cents	6¼ cents
Tea lead	4½ to 4¾ cents	5½ cents
Zinc scrap	5¼ to 5½ cents	6¼ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying.	Selling.
Heavy yellow brass	15 to 15½ cents	16 cents
Brass, light	11½ to 12 cents	13 cents
Red brass	21½ to 22 cents	23 cents
Copper, heavy	21¾ to 22¾ cents	23½ cents
Copper, light	19½ to 20½ cents	21½ cents
Lead, heavy	5½ to 6 cents	6⅜ cents
Tea lead	4½ to 5 cents	5½ cents
Zinc scrap	4 to 4½ cents	5 cents
Mixed babbitt	6¾ to 7 cents	7½ cents
Solder joints	14½ to 15 cents	15½ cents



When I was a Boy they
* * *
Used to crack jokes about
* * *
Plummers and Say that
* * *
they was Robbers and Crooks
* * *
And plunderers.
* * *
But Smith, the Up-to-Date
* * *
Plummer of Bingsville,
* * *
Was telling me that the
* * *
Association had taken up
* * *
this Matter of Belittling
* * *
their Professhun, and now
* * *
I notice that most of the
* * *
Jokes are cracked about
* * *
Ford Automobiles, which
* * *
is All right to Me Because
* * *
I have an Overland.
* * *
But do you know that
* * *
I can't see where any body
* * *
Could have been nicer or
* * *
Fairer than Smith, our
* * *
up-to-Date Plumber, when
* * *
He arranged to Put in Our
* * *
New Bathroom, which I had
* * *
Installed to Serprize my
* * *
Wife. I told Smith not
* * *
to Spend more than $500,
* * *
and When I got the Bill it
* * *
Was For $411.31. I went
* * *
in to pay him and I asked
* * *
him why he didn't charge
* * *
Five hundred dollars and
* * *
he told Me that he had been
* * *
Able to Save some money by
* * *
Buying this outfit Before the
* * *
Price went up, and he gave
* * *
Me the Benefit of the Saving.
* * *
Furthermore, he said that the
* * *
Price of $500 was only an esti-
* * *
Mate—and he found that it
* * *
didn't take As long as He fig-
* * *
ured It might take, so that money
* * *
Was saved, too.
* * *
If plummers are robbers, I wisht
* * *
there were Some
* * *
Plummers keeping
* * *
Coal Yards and Grocery Stores.

COPPER AND THE WORLD WAR.

America is the greatest copper-producing country in the world and its miners are the best paid miners in the world. It is true that miners frequently have demanded higher pay as the cost of living has mounted. It is equally true that they occasionally have been disappointed in not getting what they asked. But, when they pause to reflect on what their conditions would be under German domination, they find reason to congratulate themselves.

The wages of a miner in the United States are from 200 to 300 per cent higher than those of men similarly employed in Europe before the outbreak of the world war. Silesian and Austrian miners lived under the most distressing economic conditions and an American miner's pay would have meant affluence to them.

When the kaiser plunged into war, he hurled his armies into Belgium and northern France. With what idea? To seize the coal and iron mines of those two countries. And his armies have held possession of them to this day, with the exception of one or two isolated mines near Lens, which they flooded upon being forced to retire under the repeated onslaughts of the allied armies.

Serbia was crushed in order that the copper mines in that country might come under the control of the German and Austrian governments. Germany had, before the start of the war, developed a tremendous industrial life in the metal trades, and now it is intent upon dominating the world in this field.

Just now the copper industry here in the United States is experiencing an undreamed of prosperity. According to figures of the United States Department of Commerce, recently made public, copper exports to France, Italy and the United Kingdom in September totaled 54,577,594 pounds compared with 52,220,885 pounds for the corresponding month in 1916. Exports of copper to these nations for the nine months ending September 30, 1917, totaled 675,275,340 pounds compared with 458,316,552 pounds in the similar period of 1916.

These figures serve to show what is being done in the copper trade in the United States. The steady work and the good pay of the miners is the result.

"The copper miner or worker in America should realize his enviable position as compared to that of the miner in Europe," said a man high in the copper industry the other day, "and every man engaged in the industry should aid to his full limit our government in its task of defeating the kaiser's armies and of keeping German rule and German wages on the other side of the water. The miner who doesn't go to the front can do his bit by lending the government his money to insure continuation of his own favorable condition."

AMONG THE PLUMBING AND HEATING CONTRACTORS

Illinois

Chicago and Vicinity.

The Mehring & Hanson Co., of 118 North Franklin Street, has been awarded the contract for the installation of the heating system in a factory building, to be erected at a cost of $60,000, at 2707 Ann Street.

The Luder Plumbing Co., of 1310 Sedgwick Street, has secured the contract for the installation of the plumbing system in a theater, store and office building, to be constructed at a cost of $220,000, at 2408-18 West Madison Street. The building will contain five stories. The architect is Walter Alschlager of 111 West Washington Street.

William Downs, of 4219 South State Street, has been awarded the plumbing and heating contracts for a twenty-four flat apartment building, to be erected at a cost of $70,000, at 7124-36 Ridgeland Avenue. The architect is L. M. Mitchell, of 19 South LaSalle Street.

T. J. O'Malley, of 308 Oak Street, will install the plumbing in three apartment buildings, three stories each, to be erected at 703-17 Cornelia Avenue and 3451-53 Blaine Place. The heating contract has been awarded to Nilson Bros., of 3222 North Halsted Street.

A. Allardyce, of 5450 North Clark Street, has been awarded the contract for the installation of the plumbing in a building of six apartments, to be erected at a cost of $25,000 at 3002 Blaine Place. The heating contract went to the Jefferson Heating Co., of 5547 Leland Avenue.

The Murphy Plumbing Co., of 23 East Congress Street, will install the plumbing in an office, shelter and sand court, to be constructed at 6024 South Ada Street.

Noble & Thumm, of 2313 Lincoln Avenue, have secured the contract for installing the plumbing system in two stores to be constructed at 3747 and 3749 Southport Avenue.

The contract for the installation of the plumbing in a club house, to be remodeled at a cost of $15,000, at 205-207 West Washington Street, was awarded to Carl J. Stein, 853 South State Street.

Other Cities in the State.

O. M. Dawson, of Decatur, has secured the contract for installing the plumbing in a new residence to be erected at a cost of $4,000 in that city.

The Harris Plumbing Co., of Decatur, will install the plumbing in a residence to be built at a cost of $7,000 in that city.

The McCullough Plumbing Co., of 111 West First Avenue, Rock Island, was recently awarded the contract for installing plumbing in a Y. M. C. A. building to be erected at a cost of $75,000 in that city. The heating contract went to Hays & Eastman, 224 South First Street

W. A. Robbins, of Elmhurst, will install the heating system in a new $6,000 residence in that city.

California

San Francisco and Vicinity.

Among the more important buildings announced since January 1st are the following: A five-story and basement hotel building with about one hundred rooms with private baths, to be erected on Post Street, near Leavenworth, at a cost of about $100,000; a six-story and basement apartment house, to be erected on Hyde Street, near Greenwich, at a cost of about $75,000; a two-story apartment house, to be erected for A. V. Matta on Joyce Street, near Pine; a four-story and basement apartment building, to be erected for J. C. Hladik, at the corner of Greenwich and Larkin, at a cost of $35,000; a four-story and basement addition to St. Mary's Help Hospital, to cost $50,000; and a three-story and basement concrete club house, on Market Street, near Fifteenth, to cost $30,000.

Indiana

Indianapolis and Vicinity.

All theaters, saloons, churches, pool rooms, bowling alleys, lodge halls and club houses in Indianapolis were closed tight from Tuesday evening, January 15th, until Saturday evening, January 19th, and all retail and wholesale stores, with the exception of drug stores, were closed at 4:30 o'clock in the afternoons during that time, as a result of an order issued by Dr. Henry Jameson, federal fuel administrator for Marion County. The order, which was based on the critical stage of the coal situation in Indianapolis, affected nearly every business but that of the plumbing and heating contractors, and they were worried for a time that it probably would hit them next.

The immediate occasion for the ruling was the evidence that came before Dr. Jameson in regard to the great amount of distress prevalent throughout the city because of the lack of fuel. Reports from coal dealers and others made to him of the conditions of hundreds of families were pathetic in the extreme, and he decided that all non-essential things had to be sacrificed, if the suffering was to be alleviated.

Indianapolis, during the time the order was in effect, took on the appearance of the proverbial deserted village. Motion picture shows, saloons and pool rooms, usually the gathering places for amusement seekers, were dark and lonely. The "bright lights" were all dim. Any plumbing and heating contractor bent on having a lively time simply had to be of a naturally effervescent disposition, if he expected to achieve his purpose.

The habitues of the usual night life places found themselves in the position of the gentleman, who was all dressed up and had no place to go. It is doubtful if

(Continued on Page 154.)

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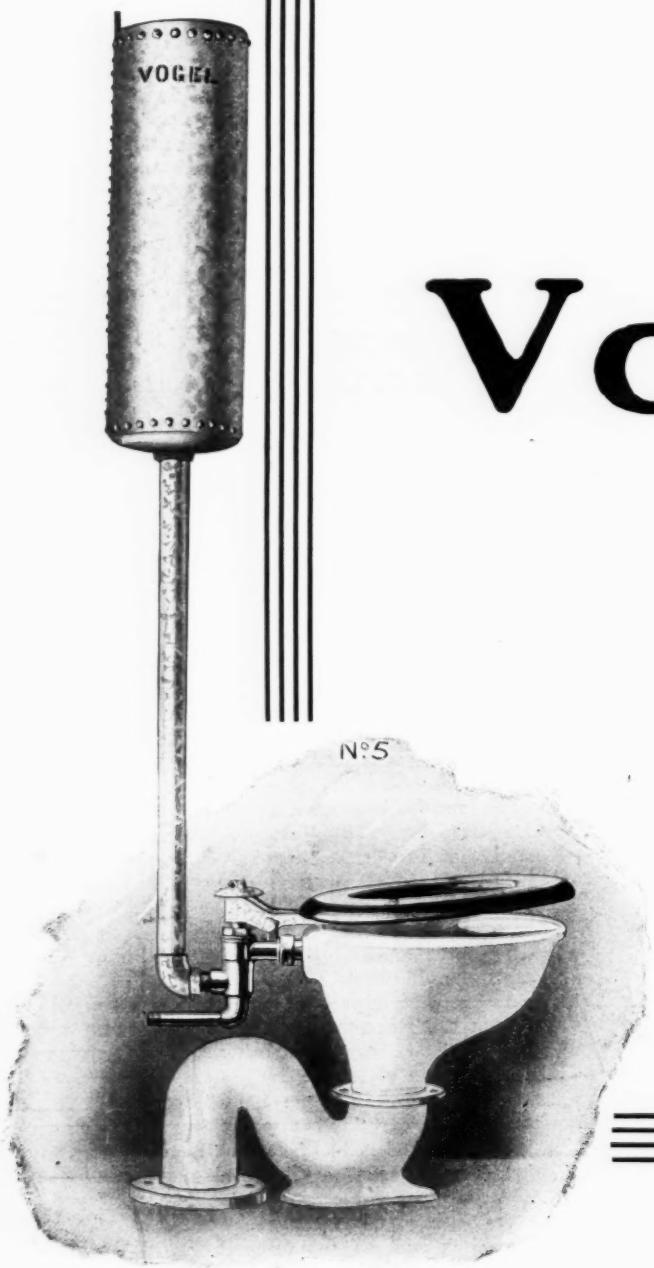
service and satisfaction th w
stalling the satisfactory kin
and is sure to bring the pu
"good will" side of his le

Vogel C



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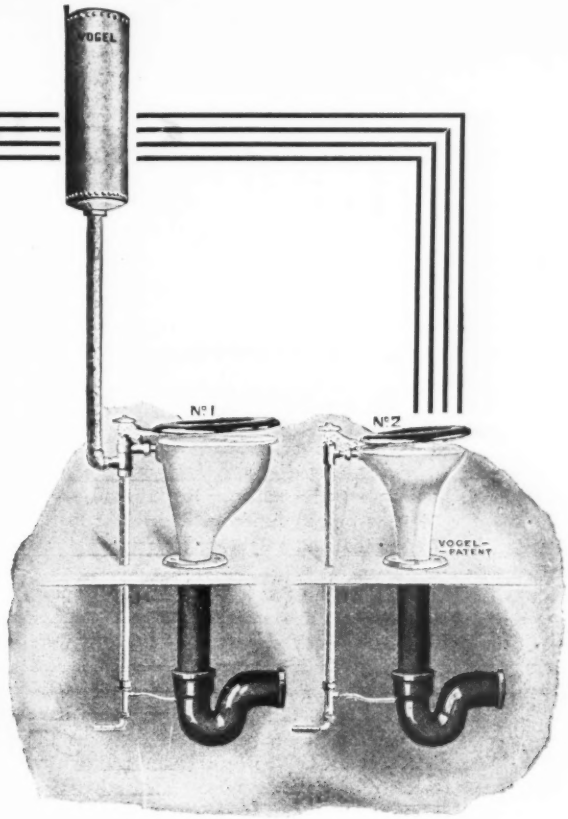

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Indianapolis and Vicinity.

(Continued from Page 151.)

Indianapolis ever spent the evenings more quietly than it did during the time the fuel administrator's order was in effect.

Even on Sunday nights the theaters and motion picture shows have offered a retreat for the "tired business man," but for four days last week even these places were closed up. The "tired business man" was simply up against it, and there is no doubt that many a "night hawk" frightened the wits out of his family by coming home before 9 o'clock or by not leaving the house at all. However, one thing was certain and that was that Indianapolis was a dead—and almost buried under fourteen inches of snow.

Dr. Jameson's drastic order came just after Indianapolis had been hit by one of the worst blizzards in any winter since 1884. The thermometer on Saturday, January 12th, registered 19 degrees below zero at the office of the government weather bureau, and some private thermometers at homes showed a mark as low at 23 degrees. The intense cold caused much suffering, and it was feared in some instances that death might result from the exposure.

Probably never before in the history of Indianapolis have the plumbers and steam fitters been as busy as they have been for the last week or ten days. There were probably more frozen heating pipes than ever before known, and water pipes in all parts of the city were frozen up during that time. In fact, the plumbers have been working day and night in the effort to make the necessary repairs. Several of the local plumbers pointed out that the majority of the frozen pipes were found in the poorer districts of the city, in which first-class plumbing had not been installed. They said that in the other districts, although there were a considerable number of freezeups, the people apparently have realized that it is better to do all in their power to try to prevent the pipes from freezing than to let them freeze and then pay plumbers to thaw them out. People are learning more and more, the local plumbers say, that it pays to install the best plumbing and heating systems in all buildings.

Ohio

Cincinnati and Vicinity.

The ancient saw about the "ill wind that blows nobody good" was never better illustrated than in the effects of the present long-continued period of severe weather on the plumbing trade. Every shop in Cincinnati has been rushed to the limit, answering S. O. S. calls from housekeepers, merchants, manufacturers and everybody else, on account of frozen and bursting pipes. The extremely low temperatures, which have become the usual thing, made it almost impossible to prevent water pipes and other plumbing from freezing time and again, and the result was that the plumbers have had more than they could do to take care of the demands made upon them. People, who left their homes and turned the water off, in order to prevent freezing pipes, found that the usual remedy was inefficient, as freezing frequently occurred in spite of this precaution. Many water meters were also frozen, causing considerable damage, while in factories and other large buildings, where sprinkler systems were installed, damage was done in a number of cases by the sprinkler pipes freezing and bursting.

Considering the handicaps, which the business world as a whole faced during 1917, the building trades did not do so badly, as the recently published figures of the building commissioner's office of Cincinnati show. It will be recalled, in this connection, that the figures showed a falling off as compared with both 1916 and 1915, but that the loss was not great. Prospects for this year are regarded as good, in spite of the increasing seriousness of the situation and the increasing absorption of activities in handling the war.

In the latest blizzard that struck Cincinnati and filled the streets with more snow than the street cleaning department could readily take care of, the Williamson Heater Co. helped out, following a suggestion that business men with teams or trucks could be of assistance, by putting heavy motor trucks, with a force of its employes, at work removing the snow from the vicinity of the building occupied by the company on West Fifth Street.

Kentucky

Louisville and Vicinity.

In answer to a request for information from the Louisville Master Plumbers' Association a letter was received by the association on Monday, January 21st, from the local board of the Fuel Administration, stating that plumbing shops would be permitted to operate on Mondays in order to take care of necessary repair work during the the cold weather. However, plumbers are expected to keep their show rooms closed for business, and save as much fuel as possible. The jobbing houses are being closed down tightly all day Monday, while the local plumbing manufacturing concerns closed during the five-day period and will be closed on each of the prescribed Mondays. Master plumbers, who do not carry much stock on hand, however, are having some difficulty in making all repairs on Mondays, as they cannot depend on the jobbing houses for material. As a whole, the master plumbers, the journeymen and the shops are not being greatly affected by the order.

J. W. Oliver, of the Ahrens & Ott Mfg. Co., Louisville, was recently elected president of the Louisville Board of Trade, at the annual election of officers. Mr. Oliver had been acting as president of the organization since last August, when F. M. Sackett resigned to become state food administrator. Mr. Oliver at that time was first vice-president and was elected to the presidency, where he made such a good record that he was re-elected by a big vote.

Massachusetts

Boston and Vicinity.

The annual meeting of the New England Association of Plumbing Inspectors is to be held at the Quincy House, Boston, on Wednesday, January 30th. Officers will be elected at this meeting. Following the usual custom the members will meet for the annual dinner at noon with the business session following. The present officers of the organization are: J. H. Lynch, of Fall River, president; G. G. Conron, of Stamford, Conn., C. O. Seaman, Manchester, N. H., M. J. Carbon, Providence, R. I., and Ernest G. Bates, Springfield, vice-presidents; O. J. Cul-

lington, Lawrence, secretary, and J. H. Mulloney, Boston, treasurer.

The Small-Denham Co., of 20 Dwight Street, Springfield, has some splendid work on its books at the present time, being engaged with the plumbing installation, including 132 new bath rooms, in the Lay Hotel at Bridge Street and Broadway; an elaborate plumbing installation in a new residence for A. H. Chapin on Maple Street, plumbing work for which will approximate $20,000; plumbing in new office building for the Moore Drop Forging Co.; also a contract, nearing completion, in the Victoria Hotel on Dwight Street.

William B. McAree was re-elected president of the Haverhill Master Plumbers' Association, Inc., at the annual meeting of the organization held on Friday evening, January 4th. Other officers elected were: Orville F. Bennett, vice-president; Clarence M. Neily, secretary; Carl A. Anderson, treasurer, and George G. Miller, John F. Butler and Mr. Neily were elected members of the executive board. President McAree appointed Mr. Anderson and J. H. Dubuque as the entertainment committee for 1918. The Haverhill association is one of the most active local associations in the state and at the present time has the largest membership in its history. The reports of Treasurer Anderson and Secretary Neily for the past year were most satisfactory and were received with enthusiasm. With his election this month Secretary Neily enters upon his sixth term. The completion of five years in office was fittingly observed at a previous meeting of the association, at which he was presented with a handsome Hamilton gold watch and a gold chain by President McAree, acting in behalf of the members of the Haverhill association. After the business of the evening the members adjourned to a bowling alley, which the entertainment committee had chartered for the evening. Members were assigned to four teams and a spirited bowling contest took place. W. N. Tyrie was high man with a single string of 107, while President McAree by piling a strike on top of a spare rolled up a 100. Refreshments and cigars followed completing a most enjoyable evening.

Clarence M. Neily.

In Walden, the Gas Co., desiring to secure the co-operation of the local plumbers to further the sale of its gas appliances, has entered into an arrangement with one of the leading master plumbers and hardware dealers in the city, W. S. Kaulbach, to take over the entire sales and installation of its gas appliances from the Gas Co.'s sales floor. This arrangement has been in effect now nearly a year, and is satisfactory to all concerned. Mr. Kaulbach, handling the gas appliances at a profit on labor and material, makes it possible for other plumbers to meet his competition on a fair basis. By arrangement with Mr. Kaulbach other plumbers may send customers to the appliance store and any sales made to these customers are turned over to the plumber sending in the prospect. This arrangement gives to the customers of the local plumber an efficient sales service and display impossible under any other arrangements. F. M. Johnson is the successful manager of this new departure.

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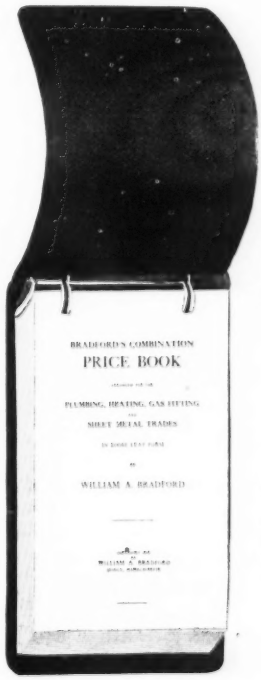
places at your finger's end the NET COST of general material required in the plumbing and heating trade, as well as the RE-SALE price.



Saves many times its cost on time wasted in figuring and is sure to place the profits on the proper side of the ledger at the end of the year.

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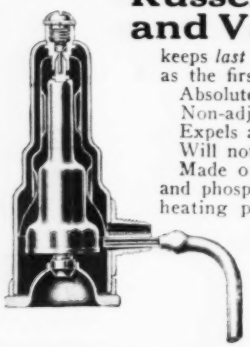

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Expels all air and prevents its return.
Will not leak steam or water.
Made of highest quality steam metal and phosphor bronze. Will outlive the heating plant.

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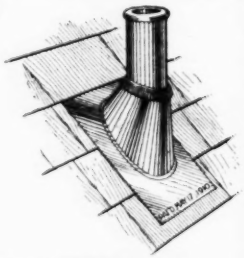

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50 CLIFF STREET NEW YORK

New York

New York City and Vicinity.

At the recent annual meeting of the Manhattan Branch of the New York City Association of Master Plumbers the following officers were elected for the ensuing year: President, J. H. Jasper; vice-president, John L. Knight; secretary, Charles Ericson; treasurer, J. L. Murphy; financial secretary, J. D. Cooley; marshall, J. C. O'Neil; sergeant-at-arms, A. E. Chandler; trustees, John P. Blair, Harry Hemlin, J. J. Falihee, Morris Jarcho and David Deigan. Mr. Jasper, the new president, is well equipped with both professional and association experience to guide the work of the organization and carry it on to still greater success. He is a college man and entered the plumbing business with John Boyd. His present successful establishment dates from 1902. Vice-president John L. Knight is the son of the late James P. Knight, and the head of the well-known establishment of J. N. Knight & Son.

Lasette & Murphy, Inc., of Manhattan, have secured the contract for the heating work in a new $125,000 factory and garage, in course of construction on Broadway from 132nd to 133rd Streets, for the Fifth Avenue Coach Co.

New Jersey

The annual Banquet and Ladies' Night of the Master Plumbers' Association, of Newark, will be held on Thursday evening, February 7th, at L. Achtel-Stetter's on Broad Street. High class entertainment and dancing will follow the banquet. The committee is preparing for a record-breaking crowd. It is composed of John J. Turbett, chairman; F. J. Sturn, treasurer; Elmer Lutz, William Spatcher, Edwin Sternkopf, Jr., and Mathew J. Brady, ex-officio.

W. A. Snudden, of Morristown, is doing the plumbing and heating work in the Memorial Hospital addition.

F. W. Margaritell, 1260 Oakwood Avenue, Lyons Farms, will do the heating work in a new theatre and store building at Clinton and Peshine Avenues, Newark.

J. H. Baumblatt, of Paulsboro, has been awarded the contract to install plumbing and heating systems in twenty-one new houses for the Harrison Fuse Works.

Pennsylvania

Philadelphia and Vicinity.

Le Roy K. Smith has taken out a permit to build an apartment house at Thirty-sixth Street and Powelton Avenue, for J. D. Winchell.

P. J. Hoft, of 245 South Eighth Street, is installing the plumbing system in the plant of the Premier Brewing Co., in this city.

Frank J. Eustace, of 893 Belmont Avenue, has been awarded the plumbing contract on a row of dwellings in West Philadelphia.

Simon & Gallagher, of this city, have been awarded the contract to install plumbing and heating systems in ten houses to be erected on West Chester Pike.

Rhodes Bros., of Chester, have secured the contract to install plumbing and heating systems in 400 houses.

SOMETHING ABOUT WATER.

(Continued from Page 132.)

ment or valve which automatically reduces pressure of water and holds it steady within a building.

The principle underlying the operation is illustrated in Fig. 7 in a simple way. The pressure in a pipe A is 1 pound by the gauge. A piston, B, having a one square inch face, is subject to an upward water pressure of one pound.

A lever, C, having its fulcrum at D, connects piston B to a piston E, which has an area of 10 square inches.

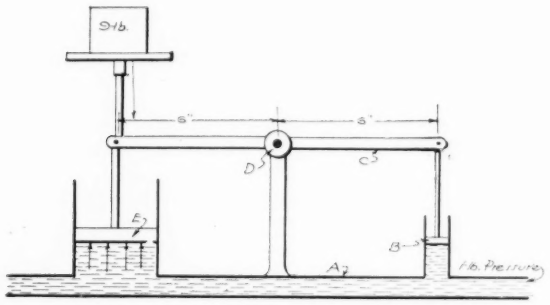

Fig. 7.

It is evident from what we have already said that the upward pressure at E is 10 pounds, while that at B is only one pound.

The fulcrum D is midway between these pistons, therefore, it is evident that piston E pushes up with a force of 9 pounds more than B. To balance these forces requires 9 pounds somewhere to push down on E. If this is not done, the piston E will be blown out, while B is pushed away down, because lever C is hinged and free to move up or down at either end like a pair of scales. The illustration in Fig. 7 shows a condition of balance.

This balance, however, can be obtained in another way. The fulcrum can be moved toward E and secured in such a position that the lever arm between it and piston E is 1/10 the length of the other lever from center to center of

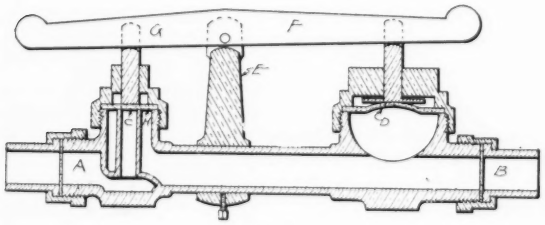

Fig. 8.

pins. Then you have a balance without adding weight, as in Fig. 7.

This is the balanced condition:

10 pounds×1 unit length of lever=10.

1 pound×10 units length of lever=10.

Fig. 8 is a section through a case, showing how these principles are combined in a practical device that plumbers frequently install to regulate pressure. Suppose it is used to reduce a 100 pound street pressure to 50 pounds within a building. The end A would connect to street pressure, and B to the building pressure. Now suppose the area of the flexible diaphragm C exposed to the street pressure is .25 square inch, while the effective area of flexible diaphragm D is 2 square inches, then the ratio

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EASTERN BRANCH. 7 W. 45th St. NEW YORK

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by installing the system most economical to maintain—the

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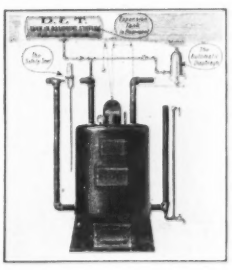

costs less to install than others; permits use of smaller pipes; speeds up circulation; always makes a satisfied customer and gives you a good profit.

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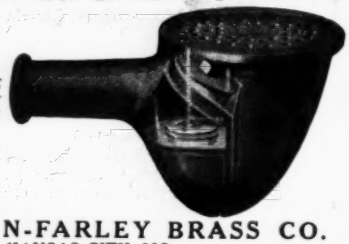
where the SIGNET Drain is used.

Keeps basement dry, clean and sanitary. A positive safeguard, either wet or dry, against sewer gas and water.



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Our Booklet on modulated and Vapor heating is full of instructive matter. It also illustrates and describes our specialties. Send for your copy.

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of area is 1 to 8 in favor of D. If the fulcrum E is set so that lever arm F and G are equal in length, measuring from fulcrum to pistons, then the valve C would close when a pressure of $\frac{100}{8}$=12.5 pounds developed in B, that is regulating the effect of area H. This pressure, however, is too low in the building so the plumber moves fulcrum over toward the house pressure end. This lengthens lever G and shortens F. The physical effect is that a higher pressure must be raised in the house pipes to meet the requirements of the new lever position and street valve C.

Suppose that the adjustment has been made so that C closes when 50 pounds pressure is in building. Then when a faucet is opened the pressure in B drops and C opens, which supplies the water. But as soon as faucet is closed, the pressure again accumulates in B, and when it reaches 50 pounds closes the valve C.

Now we have explained the fundamental principles and showed their application to practice. We have not covered the whole subject, but just a little bit. Perhaps, we may have something more to say later, if the writer can find time and the editor can afford space.

THE DAY BOOK OF THE BON TON DE LUX PLUMBING & HEATING CO.

(Continued from Page 145.)

stepped out to get a cigar I asked his book-keeper if they had ever loaned any tools and things, and he says what do you want to borrow, and I told him nothing, but that a fellow had loaned a couple of wrenches and hadn't come back, and he says did he make a deposit, and I says no, what for, and he says so as to make him come back in a hurry. Then I gave him a good cigar that Blackie had given to me. I don't like the cigars that Blackie gives away. They are too strong. Blackie says he don't like 'em either, and so he smokes his own kind, but gives these away. I guess maybe his house gets a few boxes thrown in with every car of pipe they buy, because they are both made in Pittsburgh. And then he tells me that Old Man Flannigan has some old wrenches what is almost worked out, and some old die stocks and some cutters that go round a pipe like a fool cow going round a hill, and when some bird comes in and wants some tools he lets 'em take these, but he makes 'em plank down some good old coin and lots of it, so that if they don't bring back the tools he can buy some good new tools with the money. Well, that was easy worth the cigar and I'll know what to do, when some more of that Johnson family comes in.

January 22, 1918.

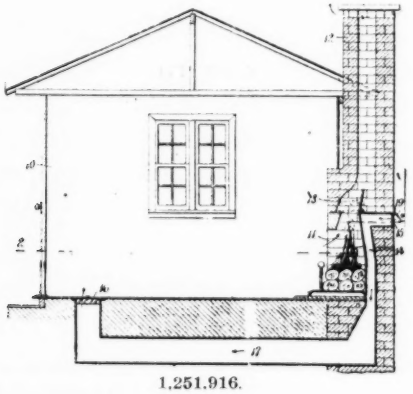
Well, that Johnson came in just before quitting time and gave me back the two wrenches and all of the plugs and said: "Much obliged," and started for the door, and I woke up and says: "How about the coil?" and he says that he got that fixed all OK, and I says, did you do it yourself, and he says sure, he says, I took the old coil down to the pipe cutting shop at the supply house, and they made a new one just like it, except that it was made of new pipe and fittings, and I took it home and put it in, and they only charged for the pipe and the fittings and cutting and the threads. Then he beat it. I'll bet that Johnson didn't need any ear muffs for awhile, but talking don't pay the rent, although it made me feel a little better to blow off a little extra steam.

(To be Continued.)

Patents

Heating Department.

1,251,916. Fireplace Heating System. Joseph Parsons, Lakeville, Conn. Heating apparatus for a room, comprising a fireplace open to the room and provided with a flue forming an outlet from the room, an air heating chamber disposed in heat receiving relation to the fireplace, said air heating chamber having a fresh air inlet outside the room and provided with an outlet for heated air opening into the room at a lower level than the fireplace and at a point remote from the fireplace to thereby deliver fresh air heated by the fireplace to a point within the room removed from the fireplace, from which point such heated air will traverse the room back to the fireplace and escape through the flue thereof, thereby creating throughout



1,251,916.

the room a circulation of fresh air heated from the fireplace, and means controlling the heated air delivered by said air heating chamber to the before mentioned lower remote portion of the room.

1,251,898. Radiator. Hiram D. Layman, Portage, Pa., assignor of one-half to Florence P. Layman, Portage, Pa. In combination with a steam radiator and a stationary steam supply pipe, a head mounted for turning movement relative to the steam supply pipe and operatively engaged with the radiator, said head affording communication between the radiator and the supply pipe, a return leading from the radiator and extending within the head, and a check valve interposed in the portion of the return within the head.

1,251,157. Priming Cock. Walter I. Oeschger, Detroit, Mich. In a priming cock, the combination of a body having one end polygonal in cross section, a sheet metal up having a polygonal shank fitting around the polygonal end of the body, said body having a transverse tapering hole intermediate its ends and longitudinal passages extending from said tapering hole to its ends, a plug provided with a transverse passage and fitted into said tapering hole, and means to hold said plug in position.

1,251,901. Pipe-Joint. John A. McCulloch, McKeesport, Pa., assignor to National Tube Company, Pittsburgh, Pa., a corporation of New Jersey. In a pipe-joint, the combination of a sleeve, pipes having integral beads adjacent to the ends thereof with said ends telescoping within the sleeve, means on the interior of said sleeve extending be-

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Operates noiselessly.
Requires minimum attention.
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Use these six cans according to directions to clear waste and drain pipe stoppages. If the Solvent does all we claim for it you are to send us $3.60 (special price for plumbers) within ninety days. If not the trial costs you nothing.

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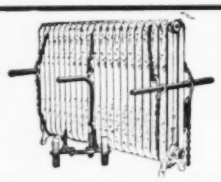

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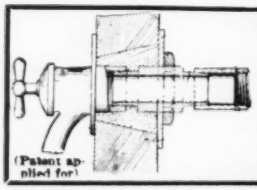

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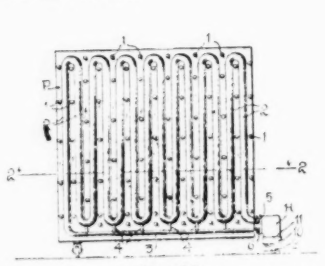
tween the abutting ends of said pipes to limit lengthwise movement of the sleeve on said pipe ends, flanges having tubular projections telescoping over the ends of said sleeve, said pipe ends, flanges, and sleeve coacting to form packing recesses at the ends of the sleeve, a compressible packing covering the annular bead within each recess, and bolts connecting said flanges, said bolts being arranged to cause a relative approach of said flanges and thereby compress the packing material around the beads and thereby form a tight joint between the connected pipe ends and sleeve.



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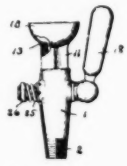
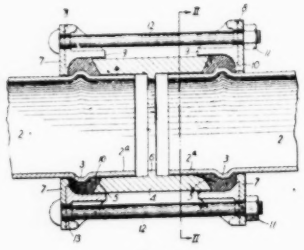
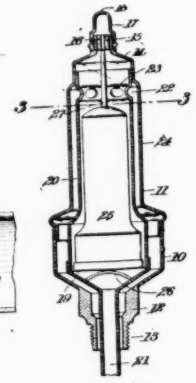


1,252,157



1,251,901.



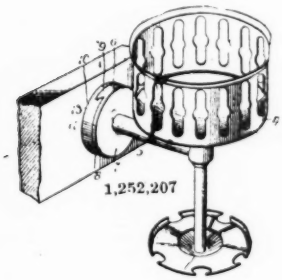
1,252,267

1,252,267. Automatic Air Valve for Steam Radiators. George D. Hoffman, Pasadena, Cal., assignor to Hoffman Specialty Company, Chicago, Ill, a corporation of Illinois. An air valve for steam radiators comprising a casing having an air outlet in its upper end and having a conical bottom provided with a centrally disposed nipple, a water accumulating chamber within said casing also having a conical bottom, a siphonic drainage tube leading from the bottom of said water chamber at the center thereof, and connected therewith to prevent passage of water from the chamber except through said tube, a float within said water chamber provided with a valve for closing said air outlet, and an air conduit having its inlet end communicating with the nipple, and having its air discharge outlet in the upper portion of said water accumulating chamber, diaphragm chamber within said water accumulating chamber, and air vent pipes extending through the bottom walls of said casing and said water accumulating chamber and communicating with said diaphragm chamber, said float normally resting upon said diaphragm chamber.

Plumbing Department.

1,252,207. Bath-Room Fixture. Frank O. Walker, Chicago, Ill., assignor to Central Specialty Manufacturing Co., Chicago, Ill., a corporation of Illinois. A bath-room fixture comprising a wall portion adapted to receive attaching members, a member secured to the fixture body and adpated to overlie said wall portion when the fixture is positioned and conceal the attaching members, a wedge-shaped tongue and groove connection between the fixture member and wall portion adapted to prevent separation

of said portion and member in one direction, a resilient lock for preventing such separation in the opposite direction, and said portion and member when assembled presenting a finished surface in accordance with the finish of the fixture, substantially as described.



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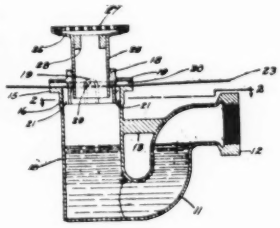
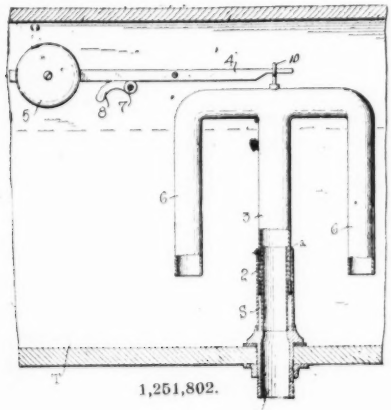


1,251,506.

1,251,506. Trap for Floor-Drains, Shower Baths and the Like. John I. Gorman, Cleveland, Ohio. The combination with a trap having a leg portion and a body portion, said body portion having an annular flange at its rim and an interior screw thread of a thimble arranged to screw into said body portion, said thimble having an annular flange corresponding to the flange on the body portion and an interior screw-thread, said thimble being provided with a series of L-shaped grooves on the exterior surface thereof, said grooves extending vertically upward from the lower end of the thimble to the flange and horizontally along the bottom of the flange, a dish-shaped sheet of lead arranged on top of the body portion, said sheet of lead having an opening registering with the opening at the top of the body portion, the portion of the lead sheet which overlaps the flange on the body portion forming a gasket and the dish-portion of the sheet of lead providing means for catching the seepage water and returning it to the trap by way of the L-shaped grooves and a drain pipe adapted to screw into the thimble so as to be adjustable therein.



1,251,802.

1,251,802. Flushing-Valve. Charles Thomas Miller, Macon, Ga. A flushing apparatus comprising a tank, a siphon having an inlet leg and an outlet leg, the outlet leg being made in two sections, one section being connected to the tank and formed with double upwardly extending walls providing a sealing cup, containing liquid sealing material, the other section having sliding engagement in said cup and dipping into said sealing material, and manually actuatable means for positively depressing the inlet leg and the upper section of the outlet leg of the siphon.

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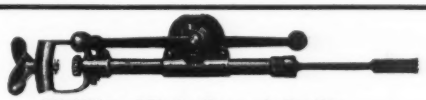

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¶ A page in next week's issue, entitled "RUBBER? NO!" will surely interest pipe users.

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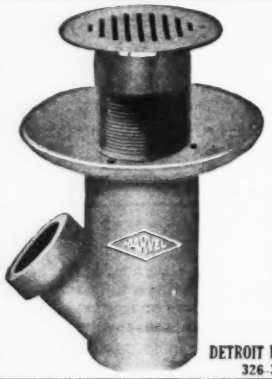

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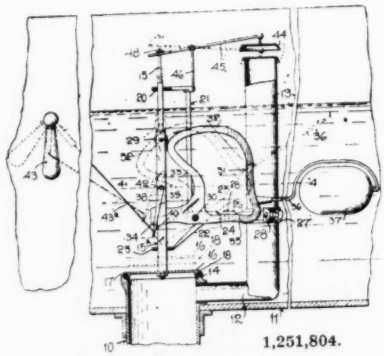
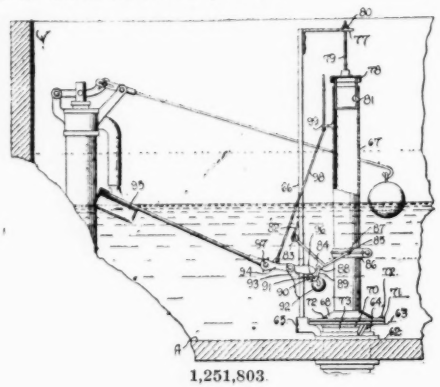
1,251,804. Actuating Device for Automatic Flush Tank Valves. Charles T. Miller, Macon, Ga. In a flush tank, a valve seat and a valve, a lever pivoted intermediate its ends and carrying a float at its outer extremity, a valve stem extending upward from the valve and carrying a roller, the inner end of the lever being formed to provide a nose projecting beyond the valve stem, and an upwardly extending portion formed with a rearwardly curved face adapted to engage with the roller as the outer end of the



1,251,804.

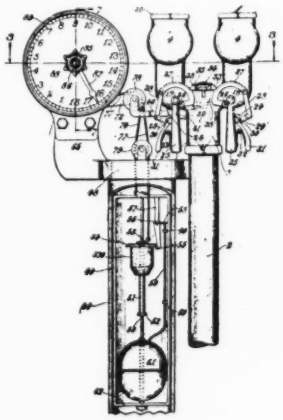
lever moves upward under the action of the float, a latch swingingly mounted upon the valve stem and normally engaging beneath the nose of the lever whereby the lever acts to hold the valve to its seat, said latch being shiftable out of such a position to thereby release the lever and permit it to rotate under the action of the float to thereby initially engage the roller and lift the valve stem, the latch then swinging back to a position above the nose of the lever whereby when the float end of the lever falls, the valve stem and valve will be further lifted until the nose of the lever disengages from the latch to permit the valve to fall to its closed position.



1,251,803.

1,251,803. Intermittently Operated Flush Tank Valve. Charles T. Miller, Macon, Ga. In a flush tank having a discharge opening, a vertically movable overflow pipe, the lower end of which constitutes the valve normally closing said opening, a support extending upward adjacent the overflow pipe, arms pivotally mounted upon the support embracing the overflow pipe and pivotally connected thereto, a lever pivoted intermediate its ends upon said support, the outer end of the lever having a float, the inner end of the lever having a beveled under face, a rod pivotally connected to the lever outward of its pivotal point, extending inward and upward toward the overflow pipe and then extending directly upward and being formed with a collar, a lug on the overflow pipe having an eye through which the upwardly extending

portion of said rod passes, the collar being below the eye, and a latch swingingly mounted upon said arms and normally depending in the path of movement of the lever and urged by gravity, into said position, the beveled end of the lever engaging said latch, when the overflow pipe is in its closed position, to thereby exert a downward pressure on the overflow pipe through said arms and latch, the beveled face of the lever acting to urge the latch out of said engagement when the flotative force on the float exceeds a predetermined point to thereby permit the float to rise and vertically raise the overflow pipe through said rod, said latch then swinging into position above the inner end of the lever whereby when the float falls, the lever, by its engagement with the latch and arms, will further lift the overflow pipe, said lever when the float has fallen to a predetermined extent slipping past the latch to permit the overflow pipe to fall.



1,252,079

1,252,079. Water-Controlling Mechanism for Laundry Tubs. Theodore Birkenmaier, St. Louis, Mo. In fluid controlling mechanism of the class described, a fluid connection adapted to deliver the fluid to a receptacle, a valve in said connection, means for setting said valve, an actuator for said setting means adapted to actuate the same to release the valve, means for retaining said actuator in suspension, mechanical means governed by the rise of fluid in the receptacle for mechanically releasing said actuator to release said valve, and means for adjusting said retaining means for a predetermined maximum level in the receptacle.

1,252,010. Solder. John R. Kinder, Jr., Ladd, Ill. The herein described solder consisting of lead 35.7 per cent, pure zinc 24.5 per cent and tin 39.8 per cent.

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Milwaukee, Wis.—Paul Lade, a master plumber, has filed a voluntary petition in bankruptcy, scheduling his liabilities at $1,002.15 and assets at $2,572.53, of which $1,047.33 are exempt.

Davenport, Iowa.—Grant T. Sherman, a master plumber at 1509 West Seventh Street, has filed a voluntary petition in bankruptcy, scheduling assets amounting to $3,011 and liabilities amounting to $4,115.09.

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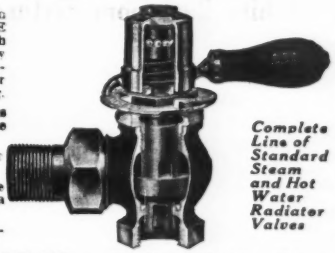

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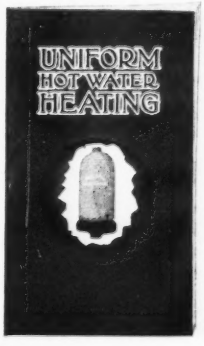

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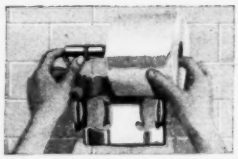

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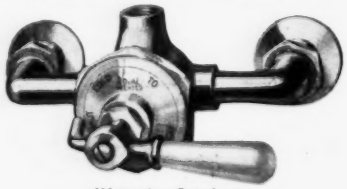

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